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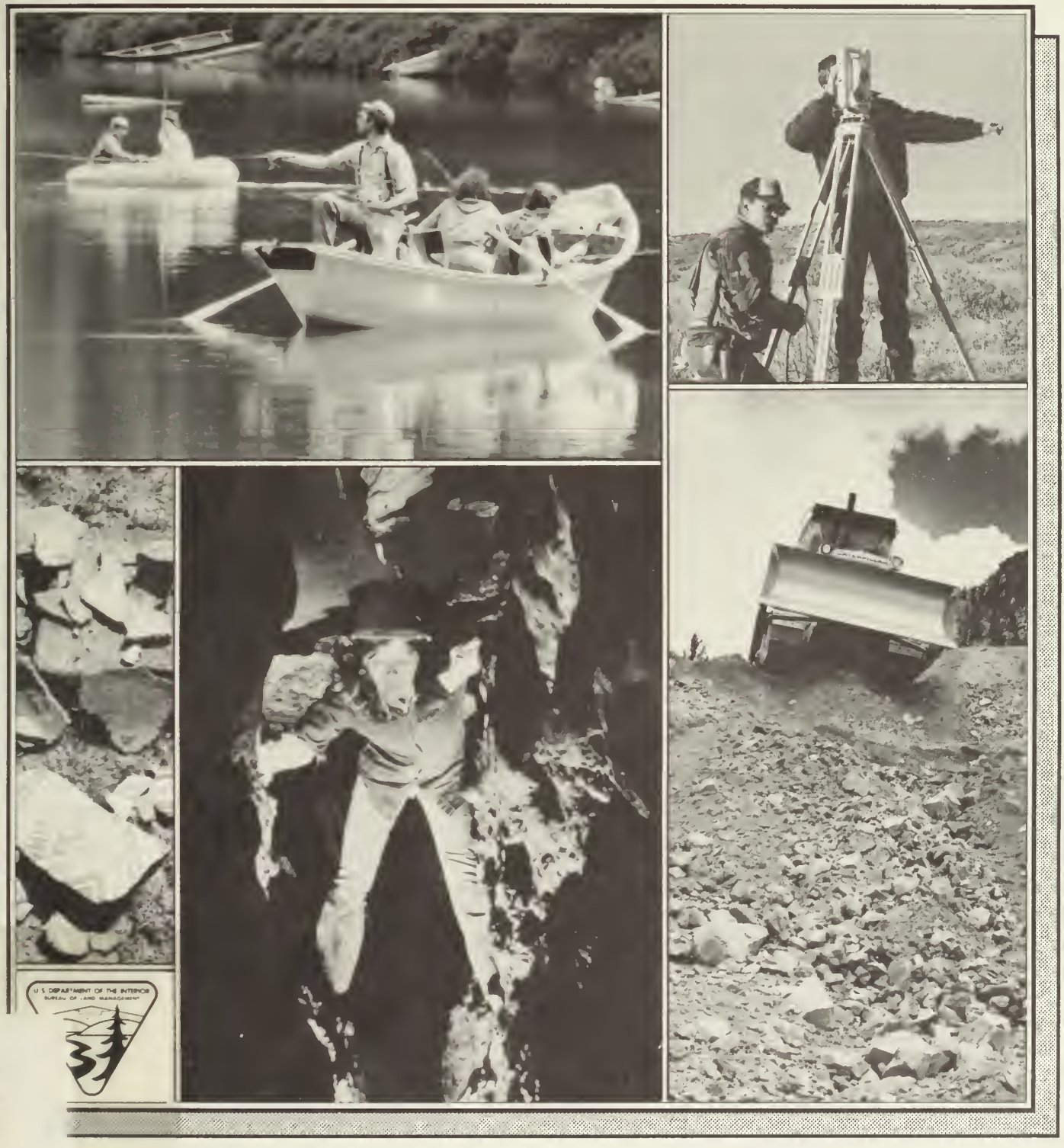
# Managing the Nation's Public Lands Fiscal Year 1987



## BLM MISSION STATEMENT

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield—a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural scenic, scientific and cultural values.

In 1986, the Bureau of Land Management celebrated its 40th anniversary as a public land management agency and the 10th anniversary of the Federal Land Policy and Management Act, the agency's primary legislative mandate for managing the public lands.

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This report to the Congress of the United States on the management of the Nation's public lands is submitted pursuant to requirements of the Federal Land Policy and Management Act of 1976 and covers the period from October 1, 1986, through September 30, 1987.

"It is not necessarily those lands which are the most fertile or most favoured in climate that seem to me the happiest, but those in which a long struggle of adaptation between man and his environment has brought out the best qualities of both."

T.S. ELIOT

# Managing the Nation's Public Lands Fiscal Year 1987

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# Introduction

In the last half of the 18th century and the first half of the 19th century, the United States Government acquired most of the land west of the Appalachian Mountains, eventually owning more than 1.5 billion acres of public domain—lands which had never been in private ownership. Although the Federal Government has since disposed of most of this acreage to private citizens, industry, and State and local governments, some of the public domain lands were dedicated to establish the National Parks, National Forests, National Wildlife Refuges, military compounds, and other government facilities. However, approximately 272 million acres—about one-eighth of the Nation—remain today as public lands, which are managed by the Bureau of Land Management (BLM) for multiple uses. In addition, BLM also manages the mineral estate underlying another 300 million acres of lands administered or owned by other agencies or private interests. Most of this acreage is located in the Western States, including Alaska, although small parcels are scattered across the Eastern States.

In 1812, Congress established the General Land Office to administer the public domain, with the primary purpose of passing public domain lands into private ownership. The passage of the Taylor Grazing Act in 1934 and establishment of the U.S. Grazing Service provided for active range management on the public domain, but this was seen as interim management of the lands pending their final disposal into non-federal ownership.

In 1946, the Presidential Reorganization Plan No. 2 merged the Grazing Service with the General Land Office to create the Bureau of Land Management within the Department of the Interior. BLM became responsible for managing all the resources on the Nation's public domain lands; however, with more than 2,000 unrelated and often conflicting laws pertaining to the public domain, the agency had no unified legislative authority to manage those lands.

When Congress enacted the Federal Land Policy and Management Act of 1976 (FLPMA), it established a coherent legislative mandate for managing the public lands and made BLM a true multiple-use agency. The law recognized that the public lands are a national asset, providing goods, services, and vast natural resources for millions of Americans:

*". . . Congress declares that it is the policy of the United States that . . .*

*"the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use . . .*

*"the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands . . . "*

(FLPMA, Section 102[a][8] and 101[a][12])

FLPMA provides a clear-cut policy that most public lands are to be retained in Federal ownership and managed by BLM under a concept of multiple use for all Americans, with the full participation of the public and a careful balancing of the interests of competing users. Today BLM manages a multitude of assets for the American public:

- about 1.4 billion barrels of proven oil reserves;
- approximately 12.5 trillion cubic feet of proven natural gas reserves;
- 10 million animal-unit months of forage to support about 4.3 million head of domestic livestock;

- the major portion of the undiscovered but geologically predictable domestic deposits of aluminum, antimony, beryllium, bismuth, cadmium, chromium, cobalt, copper, fluorspar, lead, manganese, mercury, molybdenum, nickel, platinum group metals, silver, tungsten, and vanadium;
- almost 8 million acres of commercial forest land with a producing capacity of about 1.4 billion board feet each year;
- about 80 percent of the Nation's oil shale;
- more than 200 designated areas of critical environmental concern;
- all 11 of the Nation's major tar sand sites;
- thousands of unique recreational areas, including 15 Wild and Scenic Rivers, 21 National Trails, almost 1,500 recreation sites, 65,000 miles of roads suitable for recreation travel, more than 4 million acres of lakes and reservoirs, and thousands of areas open to a wide variety of recreational uses;
- in the Western States alone, about one-third of the Nation's total coal supply, plus substantial eastern coal reserves;
- approximately 370,000 acres of designated wilderness and more than 25 million acres under study for possible designation;
- some 35 percent of the Nation's uranium reserves;
- more than 350 archaeological and historical sites recorded in the National Register of Historic Places and more than 1,200 properties considered to have nationally significant values;
- world class deposits of phosphate, sodium, lead, zinc, and potash;
- habitat for one out of every five big game animals in the United States, including many caribou, brown and grizzly bears, desert bighorn sheep, moose, mule deer, and antelope;
- nearly 85,000 miles of streams containing trout, salmon, and other sport fish—enough to encircle the Earth three and one-half times;
- prospective sources of geothermal energy on more than 55 million acres, plus 2 million acres of known geothermal resource areas;
- approximately 96 percent of all wild horses and burros managed, protected, and controlled under the Wild Free-Roaming Horse and Burro Act of 1971.

The magnitude and value of these resources frequently lead to conflicting demands and uses for the public lands. The FLPMA mandate for multiple-use management is BLM's most powerful tool for reconciling the differences of opinion about how the public lands are to be managed. Multiple-use facilitates the development of needed resources, while protecting other resource values from inadvertent damage or destruction. Through a planning, decisionmaking, and management process that balances alternative uses and involves the public at all steps, BLM can provide opportunities for many different uses of the public lands and ensure that its many resources will remain available to the public in the future.

Cadastral crews resurvey lands to determine federal boundaries.

A stellar example of effective multiple-use management on the public lands is the California Desert Conservation Area, which was established by Congress through FLPMA. As required by FLPMA, BLM prepared and, in 1980, began to implement a comprehensive plan to manage the public lands within the area. The plan is a prime example of cooperation between the Federal Government and the citizens of the United States, who together identified the multiple uses of the desert and developed the framework for managing those uses.

For the last six years the California Desert Plan has served as a blueprint for balancing the public's rights, privileges and needs on the public lands and the many significant resource values of the California Desert Conservation Area. Through this plan, BLM is able to maintain the public's opportunities to enjoy and use the public lands of the California Desert, whether for outdoor recreation, mineral production, or livestock grazing.

As President Ronald Reagan noted in 1986, on the 10th anniversary of establishment of the California Desert Conservation Area, "Recognizing both the needs of the people and the need to preserve natural resources, the California Desert Plan was developed through both innovation and active citizen involvement. Those who

developed the Desert Plan were dedicated to multiple use of our public lands and sustained yields and were able to develop an effective framework which balances resources, use, development and protection. As a result, management of this area serves as model for all public lands."

As in the California Desert Conservation Area, BLM manages all the Nation's public lands to meet the needs and desires of the American public. And as with the California Desert Plan, American citizens can play a critical part in public land management—today and into the future.

Active involvement in planning, managing, and caring for the public lands is a positive way to participate in President Reagan's Take Pride in America campaign—a national public awareness campaign to encourage everyone to take pride in the Nation's natural and cultural resources. How Americans deal with the public lands today and tomorrow will determine what those lands will offer on BLM's 50th, 80th and 100th birthdays. BLM encourages all citizens to learn more about public lands, to become involved in their management, and to enjoy those lands.

The following pages provide an overview of public land management during Fiscal Year 1987, and of the issues and initiatives BLM faces during Fiscal Year 1988. For additional perspective, the major legislative mandates affecting BLM programs, in particular FLPMA, are also briefly discussed. Additional information about BLM and the public lands is available in the BLM headquarters offices or local BLM offices.

BLM manages cultural resources, such as these petroglyphs, on public land.

# Bureauwide Initiatives

## Planning

FLPMA, enacted in 1976, specifically required the development and maintenance of land use plans for the public lands, placing special emphasis on public participation. In 1979, planning regulations were issued establishing resource management plans as the basic planning document. Other legislation containing planning requirements include the National Environmental Policy Act of 1969, the Federal Coal Leasing Amendments Act of 1976, the Surface Mining Control and Reclamation Act of 1977, and the Public Rangelands Improvement Act of 1978.

Planning helps the local manager, public land users, and others resolve resource management conflicts and land use issues. BLM seeks to improve resource management decisions on the public lands through a planning process that includes participation by the public and Federal, State, and local governments; use of the best available data; and analysis of alternatives. Resource management plans are designed to guide and control management actions relating to the increasingly competitive demands for public lands, while at the same time protecting and ensuring their long-term productivity.

Forty-four resource management plans had been approved by the end of Fiscal Year 1987. An additional eight plans were in final form and awaiting State Director approval, while nine plans were in draft form and available for public review. With more than 60 plans completed, BLM is placing increased emphasis on plan implementation, monitoring, and maintenance. In Fiscal Year 1987, the Phoenix Training Center continued to offer the "Using the Plan" training course. BLM also started plans for nonmilitary uses for four military withdrawals that were extended by Congress in 1986.

Also in Fiscal Year 1987, BLM issued final resource program specific planning guidance. This guidance supplements the basic planning guidance. It is designed to improve the content, program coverage, and comparability of future resource management plans and amendments. Guidance was issued for 26 programs and for social and economic analysis.

The BLM and the National Park Service completed a Memorandum of Understanding to coordinate planning and reduce conflicts.

## Areas of Critical Environmental Concern

FLPMA requires that BLM give priority to the designation and protection of areas of critical environmental concern. Such areas are designated to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources or other natural systems or processes; or to identify natural hazards. Natural areas may also be designated under FLPMA to maintain natural diversity and facilitate scientific research.

Areas of critical environmental concern and natural areas are identified through BLM's planning process. Management prescriptions for each area are also identified and tailored to reflect the site-specific resources and local circumstances. Protection of the identified values is ensured whenever subsequent uses are undertaken or authorized.

During Fiscal Year 1987, 25 areas comprising more than 395,000 acres of public land were designated as areas of critical environmental concern. This raised the amount of public land accorded designation to more than 5.1 million acres and reflected BLM's vigorous commitment to the appropriate use of this designation and management authority. Based on public and bureauwide review of proposed revisions, BLM is completing an effort to improve existing guidance for designation and management of areas of critical environmental concern.

Recreationsts fish blue-ribbon streams administered by BLM.

## Automated Land and Mineral Record System

A basic BLM responsibility for the last 200 years has been the maintenance of the land and mineral records for the public lands. These official documents are the basis for the legal authorizations to use the public

A BLM hydrologist checks a rain gauge at a soil and range monitoring site.

lands, including thousands of applications annually for oil and gas leases and rights-of-way.

BLM is now automating access to the information on these records, replacing hand-drawn plats and procedures that in some offices date back to the beginning of the country.

The demand for use of the public lands continues to grow and has exceeded the capacity of the manual forms and procedures used for so many years. This was demonstrated graphically when oil and gas lease applications quadrupled in the energy boom of 1981-82 and overwhelmed the paper system, just when the national interest most required efficient processing of applications for use of domestic oil and gas resources.

Implementing the Automated Land and Mineral Record System is a major effort; BLM maintains more than 250,000 cubic feet of records (1 billion documents on paper). When fully implemented in Fiscal Years 1992-93, the system will automate much of the case processing and will greatly improve responses to public queries about the availability of public lands for particular purposes, including the filing of mining claims.

The Automated Land and Mineral Record System was identified as one of 17 Presidential Priority Systems in Fiscal Year 1987, reflecting the national significance placed on implementing it. Because the system will significantly increase efficiency by implementing modern business practices in BLM, it is a cost-effective investment. Benefits total over $850 million through the system's life cycle, with the costs being approximately $150 million to implement an automated system rather than perpetuate the paper-based operations. The alternative to automation would involve retracing tens of thousands of plats, which alone would cost $30 million and provide no greater efficiency when that is clearly needed.

During Fiscal Year 1987, BLM largely completed the definition of its functional requirements for automating the records management process. This is a critical accomplishment, since BLM plans to obtain the computer capabilities through a competitive procurement planned for issuance in Fiscal Year 1989, and vendors will have to know in some detail what capabilities are required.

In late Fiscal Year 1987, after detailed discussions with the vendor community, BLM adopted a procurement strategy to "bundle" into one contract the purchase of hardware and software for the Automated Land and Mineral Record System. The strategy will increase the potential efficiency of the system. Emphasis on data administration was increased in Fiscal Year 1987 to ensure a verified data base would be operational when the software and hardware were completed.

BLM is relying upon standard, proven analytical approaches to developing automated systems: first the needs are well-documented, and then alternative management choices are made through the life cycle management process. To ensure the analysis matches the real needs of various offices, BLM also uses a prototype of portions of the planned system and is piloting computerized applications and data base operations in field offices in New Mexico.

While the delivery of operational computers in every BLM office for the Automated Land and Mineral Record System is still several years away, BLM has already created an automated data base of legal land descriptions (based on the cadastral surveys) for nearly all the Western States. It has also completed automating the land status in Alaska, New Mexico, and Arizona. BLM has initiated similar data collection efforts in Montana, Idaho, Utah, and Nevada; because of the quantity of data to be automated, collection of status data requires several years. Contracts for automating status data for Oregon, California, Colorado, and Washington were prepared in Fiscal Year 1987, with completion scheduled in Fiscal Year 1991.

## Riparian Area Management

Riparian areas are among the most productive and important ecosystems, displaying a unique diversity of plant and wildlife species and vegetation structure. These areas comprise less than one percent of the 272 million acres of public lands managed by the BLM and vary greatly in their nature and character.

In Fiscal Year 1987, BLM issued a Riparian Area Management Policy that stresses the interdisciplinary, multi-resource character of riparian area management. This means that all programs—range, watershed, forestry, lands, minerals, etc.—share the responsibility of

ensuring that the basic riparian area components of soil, water, and vegetation are taken into consideration when conducting program activities. The policy also serves as guidance to field managers on how to maintain, protect, and improve riparian areas. Several BLM State Offices have developed supplemental riparian policies and all States have prepared riparian management strategies.

The BLM Riparian Task Force Reports have been completed. They provide technical guidance to the field for riparian area classification, inventory, monitoring, and management.

There has been increased "riparian consciousness" among BLM resource specialists and managers and public land users through BLM-sponsored workshops and tours. Public information materials on riparian management, including fact sheets, videos, slide shows, and displays, have been distributed to field offices.

To illustrate the enhancement of riparian areas, each BLM district has established at least one riparian demonstration area, where the best management practices and instream habitat improvement work have been or will be implemented. These areas will demonstrate the benefits and resiliency of riparian systems to BLM resource specialists and managers, livestock operators, conservation groups, and other public land users.

During Fiscal Year 1987, a national cooperative agreement on riparian restoration and the use of volunteers was initiated by BLM, Forest Service, Izaak Walton League of America, and others.

## Hazardous Materials Management

Hazardous materials management is a program that affects many other BLM programs, including lands; minerals; forestry; range; soil, water, and air; engineering; and resource protection. The program is based on the requirement for compliance with the Resource Conservation and Recovery Act, as amended, which regulates treatment, storage, and disposal of hazardous wastes; the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, which regulates cleanup of spills and abandoned waste sites; and many other Federal and State laws that regulate the management of hazardous materials.

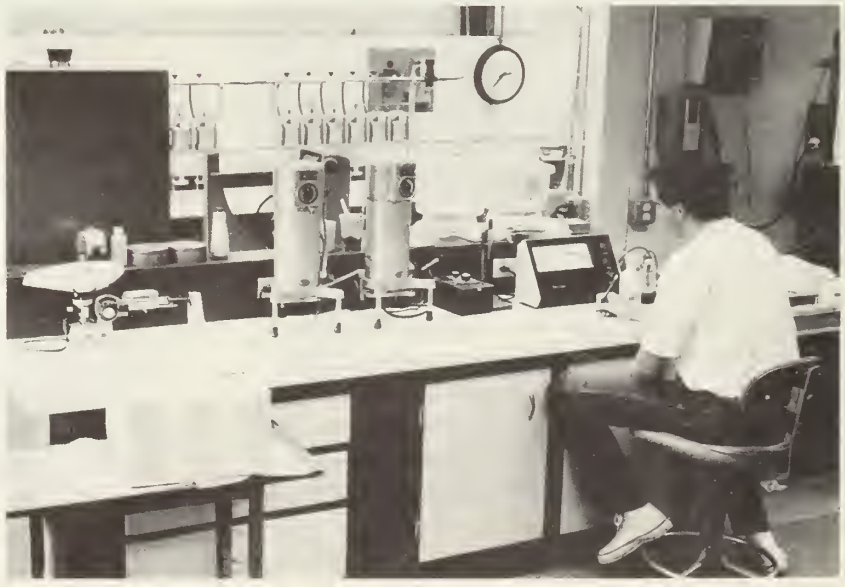
The goals of the program include:

- Protection of the health and safety of the public, Federal land users, neighbors, and BLM employees, as well as protection of the environment and natural resources;
- Compliance with applicable Federal and State laws, regulations, and orders, within the context of BLM's statutory mission as a Federal natural resource manager; and
- Cleaning up past problems, controlling current problems, and minimizing future problems of hazardous materials on public lands in a cost-effective manner.

During Fiscal Year 1987, program activities for hazardous materials management continued in all BLM State Offices. Field officials were involved in 33 hazardous waste cleanups on the public lands.

Other significant accomplishments included conducting 87 land status assessments; conducting inventories to identify, or confirm the presence of, hazardous wastes on public lands; providing safety training and material for field staff; working with the States to initiate further studies of appropriate sites; providing extensive policy, technical, and program assistance and support to other BLM program divisions on the hazardous materials aspects of their programs; and developing a strategy for eliminating the backlog of sites requiring assessment and investigative analysis.

Issues yet to be resolved include the questions of the most effective means for cleanup of toxic or hazardous sites on Federal lands, improved communications and coordination, and funding.



A BLM geologist checks the quality of bentonite at a BLM bentonite lab.

# Energy and Minerals Programs

## Oil and Gas Management

### Oil & Gas Leasing

The Mineral Leasing Act of 1920, as amended, and the Mineral Leasing Act for Acquired Lands of 1947, as amended, give BLM responsibility for oil and gas leasing on about 600 million acres of public lands and national forests, and private lands where mineral rights have been retained by the Federal Government. Both competitive and noncompetitive oil and gas leasing are covered by the Acts.

Table 1
FY 87 Oil and Gas Leases Issued

| | Leases Issued | Acreage Leased |
|---|---|---|
| Competitive | 1,000 | 232,000 |
| Noncompetitive: | | |
| Over-the-Counter | 500 | 1,100,000 |
| Simultaneous | 5,700 | 6,100,000 |
| Total | 7,200 | 7,400,000 |
| Leases in Effect As of 9/30/87: | 88,700 | 72,000,000 |

Oil and gas leasing remained at unusually low levels in 1987. As in 1986, the number of lease terminations, relinquishments, and expirations during the year was greater than the number of new leases issued. By the end of Fiscal Year 1987, there were 15 percent fewer acres under lease than at the beginning of the year.

As a result of a market analysis prepared by BLM, together with the low level of interest expressed by industry, BLM decided not to hold a lease sale in 1987 for the National Petroleum Reserve, Alaska (NPR-A). This follows similar decisions for the same reasons in 1985 and 1986.

### Oil and Gas Operations

BLM is responsible for inspecting drilling and production operations on Federal leases to ensure compliance with regulations for production, storage, measurement, transportation or sale of oil and gas from Federal onshore and Indian leases.

As of September 30, 1987, there were approximately 48,000 producible completions, that is, wells demonstrated capable of producing oil or gas in paying quantities, on Federal onshore and Indian leases. During Fiscal Year 87, there were 1,112 producible wells completed.

During Fiscal Year 1987, onshore oil and gas leases generated about $625 million in bonus, rent, and royalty payments to the Federal Government. Fifty percent (or, in the case of Alaska, 90 percent) of this revenue is returned to the States where production occurs. Another Interior agency, the Minerals Management Service, collects and distributes these receipts.

The most significant event in administering oil and gas operations on Federal leases this fiscal year was the issuance of final regulations to implement the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA). These regulations went into effect April 20, 1987, and provide new definitions for "knowing and willfully" and "major violation;" eliminate the complex penalty formula; limit automatic assessments; and modify administrative review and other procedures.

In addition to the new regulations, BLM is developing a series of nine Onshore Oil and Gas Orders to provide minimum acceptable standard for oil and gas operations. Order No. 1, Approval of Drilling Operations, was completed in 1983. Orders concerning drilling operations (Order No. 2) and site security (Order No. 3) were published as proposed rulemakings on August 13, 1987, and will be finalized in Fiscal Year 1988.

Section 205 of FOGRMA provides that the Secretary of the Interior may delegate all or part of his authority for inspection and investigations of oil and gas lease sites to State governments. The regulations for delegations of authority went into effect August 17, 1987. A couple of States have expressed interest, but no agreements have been established.

Section 202 of FOGRMA provides for cooperative agreements with Indian tribes to perform inspection and investigation functions on Indian leases. During Fiscal Year 1987, trainees from the Southern Ute, Ute, Northern Ute, Navajo, and Jicarilla-Apache attended courses in BLM's inspector training program. BLM also provided opportunities for trainees from other Federal agencies and States whenever they could be accommodated.

The low oil price situation that began in 1986 continued through 1987, with some moderate improvement during the second half of the year. For this reason, BLM extended the suspension of production requirements on stripper/marginal well leases for another year, to prevent premature abandonment of oil and gas resources. As of September 30, 1987, there were 350 such leases in suspension, representing about 1.5 percent of the producible Federal leases.

BLM continued its aggressive program to identify all wells that are potentially draining Federal resources. A Drainage Policy Review Team was established, and its recommendations are currently being implemented. BLM also continued its efforts to automate drainage identification. The computer-based Potential Drainage Detection System (PDDS) is being improved and enhanced for broader use in BLM.

## Geothermal Management

### Geothermal Leasing

The Geothermal Steam Act of 1970 provides BLM authority to issue leases on public, withdrawn, and acquired lands administered by the Department of the Interior and Agriculture.

BLM conducts competitive geothermal lease sales for land located in Known Geothermal Resource Areas. However, no competitive leases were issued this year because of a moratorium placed on leasing by the Department of the Interior and Related Agencies Appropriations Act for Fiscal Year 1987. After the moratorium was lifted on June 30, 1987, a geothermal sale was held in Nevada on September 24, 1987. Bids were received for ten leases, but leases were not issued until fiscal year 1988.

Three leases covering 5,600 acres were issued noncompetitively this year. At the end of Fiscal Year 1987, there were 912 geothermal leases in effect covering 1.5 million acres. This is a 25-percent decline in the number of leases and acreage under lease at the beginning of the year.

### Geothermal Operations

To date, the geothermal resources developed from Federal leases have been used mainly for electrical generation. At the end of Fiscal Year 1987, a total of 793.3 megawatts was being produced from Federal leases in three Western States. Approximately $16 million in royalties was received from geothermal production on these leases. As of September 30, 1987, there were 912 geothermal leases in effect on 1.5 million acres in nine Western States.

Table 2
Geothermal Production
From Federal Leases in FY 87

| | | |
|---|---|---|
| California: | | |
| The Geysers | 725 | megawatts |
| East Mesa | 20 | megawatts |
| Utah: | | |
| Roosevelt Hot Springs | 20 | megawatts |
| Cove Fort | 2.3 | megawatts |
| Nevada: | | |
| Beowawe | 16 | megawatts |
| Desert Peak | 10 | megawatts |
| Total Production From Federal Leases | 793.3 | megawatts |

Although, the majority of electrical generation capacity has been in California, Nevada is experiencing a great increase in geothermal development and production activities. At the end of the fiscal year, there were two power plants in production, and four power plants and one direct-use facility under construction in Nevada.

## Coal Management

### Coal Leasing

The Federal Government owns about one-third of the Nation's coal. Approximately 75.6 million acres of coal are owned and administered by the Federal Government, principally in the Western States. These western Federal coal lands contain as much as 60 percent of the total western reserves. The Federal Government also indirectly affects the use of at least an additional 20 percent of the coal in the West. Most of these Federal coal reserves are concentrated in five western Federal coal production regions located in Colorado, Montana, New Mexico, North Dakota, Utah, and Wyoming.

BLM serves as the focal point for the Department of the Interior's coal leasing program and is responsible for assuring coordination with State and local governments, industry, conservation groups, and other agencies concerned with the management of Federal coal. The Mineral Lands Leasing Act of 1920, the Federal Coal Leasing Amendments Act of 1976, the Federal Land Policy and Management Act of 1976, and the Surface Mining Control and Reclamation Act of 1977 provide the statutory bases for Federal coal leasing.

Major achievements during Fiscal Year 1987 included implementing the Secretary's February 1986 decisions on revisions to the coal leasing program and completing negotiations with environmental groups over the procedures to be used in processing the remaining coal

Coal seams provide the background as a 170-ton truck hauls coal out of an open-pit coal mine.

preference right lease applications. Program implementation activities included (1) publishing for BLM and public use a manual section and handbook, which provide detailed information on the revised competitive coal leasing policies and procedures; (2) publishing proposed regulations that would implement the Secretary's decisions on land-use planning and the application of the coal unsuitability criteria; (3) preparing regional data adequacy standards for Federal coal production regions; and (4) drafting for BLM field comment national-level standards for determining the adequacy of hydrology data.

Departmental officials concluded discussions with several environmental groups concerned about the procedures for processing coal preference right lease applications. The discussions centered around issues related to compliance with relevant environmental statutes and with the Department's procedures for determining whether an applicant has discovered coal in commercial quantities. The discussions resulted in the publication of proposed regulations in February 1987 and final regulations in July 1987. These regulations describe improved procedures for public participation and for compliance with the National Environmental Policy Act of 1969 for the remaining 109 coal preference right lease applications.

During the year, two Federal coal lease tracts were sold; they covered 454 acres and contained approximately 3.76 million tons of recoverable coal reserves. Six new leases containing 2,614 acres and approximately 12.53 million tons of recoverable coal reserves were issued.

At the end of Fiscal Year 1987, there were 552 Federal coal leases covering 806,984 acres of Federal lands. In addition to these leases, four prospecting permits, seven mining licenses, 14 exploration licenses, and 109 preference right lease applications were administered by BLM.

## Coal Operations

During the 67 years since the Mineral Leasing Act of 1920, more than 1.57 billion tons of coal were produced from Federal lands. The market value of this coal was nearly $17.8 billion on which royalties exceeding $708 million were paid to the U.S. Treasury. Since 1937, more than 370 million tons of coal have been produced from Indian lands. That coal was valued at more than $4.1 billion, and generated about $170 million in revenue for Indian tribes and allottees.

In Fiscal Year 1987, a record 191 million tons of bituminous and lignite coal were produced from 128 Federal and Indian leases by 65 companies at 79 mines located in eight States. More than 84 percent of the coal production came from Wyoming, New Mexico,

A bulldozer builds an erosion barrier to reclaim an old mining road and restore the mountain to its natural state.

Montana, and Colorado. The value of the coal produced was a record high $3.1 billion, an increase of 5.7 percent over the preceding year's total of $2.9 billion. Royalties derived from coal production were $172.6 million.

During Fiscal Year 1987, the Department of the Interior approved 18 mining plans, which will enable the lease holders to begin or expand mining operations on leased areas. Also, the Department approved five logical mining units and processed 60 readjustments of lease terms and conditions, three suspensions of operations, and 48 assignments of record title holders on Federal coal leases.

Implementation of the Inspection and Enforcement and Production Verification guidelines for coal and solid minerals in Fiscal Year 1987 included formation of Solid Minerals Assistance Teams to help promote consistency and monitor compliance. The teams visited five field offices during the fiscal year to review mine-specific Inspection and Enforcement and Production Verification plans, inspection procedures, method of production verification, and overall compliance.

Another major accomplishment was the implementation of the Solid Leasable Minerals System Phase II, a computerized data base to track all aspects of lease operations. All producing and nonproducing leases, licenses, and permits are continually monitored through the system to ensure compliance with regulations and lease terms and conditions.

BLM performed Technical Procedures Reviews of the Solid Leasable Minerals System in Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming to determine how well these States were maintaining the data in the system. A nationwide quality control program for the current Solid Leasable Minerals System database

was implemented. Additionally, a life cycle management process began to replace or improve the current system.

BLM conducted Technical Procedures Reviews of the recoverable coal reserve verification project in Colorado, Montana, New Mexico, Utah, and Wyoming. Results confirmed the validity of the project and helped to instill a better understanding of coal operations issues in every State.

Regulations implementing Section 3 of the Federal Coal Leasing Amendments Act of 1976 were published December 5, 1986. The regulations relate to Section 2(a) (2) (A) of the Mineral Leasing Act of 1920, which prohibits the issuance of any onshore Federal mineral lease to any entity that holds, and has held for 10 years, a Federal coal lease that is not producing in commercial quantities. Lessee compliance with Section 3 of the Federal Coal Leasing Amendments Act is monitored weekly as a cross-check against self-certification statements that are submitted to BLM as part of lessee qualifications.

Guidelines for processing an application for suspension of a solid mineral lease were issued on June 15, 1987. The guidelines address three types of suspensions for Federal solid mineral leases:

1. Suspension of operations and production in the interest of conservation under Section 39 of the Mineral Leasing Act, which suspends beneficial use of a coal or other solid mineral lease, as well as payment obligations for rent and minimum royalty or other production requirements;
2. Suspension of operations where a lease cannot be operated except at a loss (only applicable to solid mineral leases or coal leases not yet subject to the Federal Coal Leasing Amendments Act; suspends beneficial use of the leasehold as well as minimum royalty and minimum production requirements); and
3. Suspension due to strikes, the elements, or casualties not attributable to the lessee (force majeure), which suspends minimum royalty or other production requirements, including those of the Federal Coal Leasing Amendments Act (beneficial use of the leasehold is not suspended and the lessee continues to be responsible for the payments of rent and royalty).

## Oil Shale Management

### Oil Shale Leasing

The Mineral Leasing Act of 1920 gave the Secretary of the Interior the authority to lease oil shale on Federal lands. BLM has the Federal management responsibility for 80 percent of the oil shale resource concentrated in the Green River formation in Colorado, Utah, and Wyoming. The reserves in this 25,000-square-mile formation are estimated to contain nearly 2 trillion barrels of shale oil. Approximately 731 billion barrels of oil could be recovered with current technology. However, given present technology, the cost of extracting the oil makes it noncompetitive against conventional energy source.

The only two existing oil shale leases (tracts C-a and C-b in Colorado) are in suspension. The lessees will maintain the mines and related facilities and will monitor the environmental effects while the leases are inactive. Advance royalty payments are not required while the leases are in suspension.

An environmental impact statement was completed to allow for the offering of an off-site lease for the disposal of overburden and spent shale should the C-a lease be developed in the future.

### Oil Shale Mining Claims

Great progress was made in the final resolution of litigation involving oil shale mining claims, which has been ongoing since 1920. As a result of a settlement agreement, 82,000 acres of oil shale lands were patented, with the government retaining the rights to oil, gas, and coal. The patents also included the stipulation that the land will not be developed for non-oil shale purposes for at least 20 years.

### Nonenergy Minerals Management

Exploration for locatable metallic minerals on public lands dates back to the Mining Act of 1866, the Placer Mining Act of 1870, and the General Mining Law of 1872. The Mineral Leasing Act of 1920, as amended, and the Acquired Lands Leasing Act of 1947, as amended, authorized the leasing of public lands for private extraction of specific leasable minerals as well as oil, gas, and coal. The Act of August 13, 1954, amended the general mining laws and the leasing laws to permit multiple development of both locatable and leasable minerals on the same tracts of land.

Nonenergy leasable minerals include phosphate, potassium, sodium, sulphur, native asphalt, and gilsonite on public domain and all minerals on acquired land. The nonenergy hardrock or locatable minerals are mostly metallic minerals, such as gold, silver, lead, zinc, copper, and tungsten.

### Leasable Solid Minerals

BLM supervises activities of lessees and permittees who explore, develop, and produce solid minerals on Federal and Indian lands. During Fiscal Year 1987, there were 496 Federal and 159 Indian leases comprising 533,168 acres, plus 262 prospecting permits cover-

ing one million acres. Nearly 86 percent of the acreage and 70 percent of the leases involve the following three minerals: (1) potash, 163 leases containing 220,997 acres in New Mexico, Utah, and California; (2) phosphate, 188 leases covering 96,037 acres in Idaho, Montana, Utah, Wyoming, California, and Florida; and (3) sodium, 107 leases with 141,355 acres in Wyoming, California, Nevada, Colorado, and New Mexico.

Other leases are listed in descending order of acreage: lead-zinc-copper in Missouri; copper in Arizona and Minnesota; sand and gravel in Oklahoma, New Mexico, Nevada, Arizona, California, Washington, Wyoming, Oregon and Montana; gilsonite in Utah, fluorspar in Illinois; limestone in Oklahoma, Virginia and New Mexico; silica sand in Arizona, Nevada, Oklahoma, and California; clay in Missouri and Alabama; gypsum in California and New Mexico; gold in Idaho and Washington; chat in Oklahoma; quartz crystals in Arkansas; taconite in Minnesota; bentonite in Wyoming; amethyst in Georgia; barite in Arkansas; iron ore in Minnesota; wavelite in Arkansas; olvine in North Carolina; feldspar in Georgia; granite in Oklahoma; crushed stone in Washington; garnet in Idaho; and quartz in Arkansas.

Combined production of 17 nonenergy mineral commodities on Federal and Indian lands in Fiscal Year 1987 contributed $520 million to the country's gross national product and brought $25 million in royalty revenue to the Federal Government. About 50 percent of the Nation's potash was produced from 32 leases in New Mexico, California, and Utah, with a production value of $65 million. Approximately 46 percent of sodium compounds, mostly soda ash, produced in the country came from 16 leases in Wyoming, California, and New Mexico; the production has a value of $226 million. About 70 percent of the Nation's lead was produced from leases in Missouri and was valued at $92 million.

Phosphate production from 15 leases in Idaho, Montana, and Florida was valued at $41 million. Zinc recovered from lead mining and processing operations in Missouri was valued at $14 million. Copper was produced from one lease in Arizona and recovered from lead-zinc concentrates produced in Missouri; the value was $21 million. Other mineral commodities produced from Federal and Indian lands are listed in descending order of value produced: sand and gravel, fluorspar, silica sand, quartz, gilsonite, bentonite, iron ore, gypsum, chat, quartz crystals, and clay.

## Mineral Material Management

BLM's mineral material program, sometimes referred to as the "salable minerals program," began with the passage of the Materials Act of July 31, 1949. In 1955, Congress amended this Act by specifying that common varieties of previously locatable minerals, such as sand and gravel and stone, were to be disposed of under the provisions of the 1947 Act. Since that time BLM has disposed of mineral materials either by sale to the general public or by free use permit to qualified government or nonprofit entities as provided in the Act.

In Fiscal Year 1987, BLM completed approximately 2,500 sales and free-use permits, representing materials valued at approximately $20 million. For many western communities, the public lands continue to be the only source for mineral materials, which are used in energy and mineral development, construction and maintenance of transportation systems, and the expansion of communities and industries.

Heavy equipment is dwarfed by this open-pit uranium mine.

A BLM archaeologist examines an abandoned homestead during a cultural resource survey.

## Mining Law Administration

The Mining Law of 1872, as amended many times in its 115-year history, serves as the statutory basis for the disposition of "locatable minerals" from the public domain. In addition, minerals that are now disposed of via the Mineral Leasing Act of 1920 (such as oil shale) may be held, worked, and patented under the mining laws if claim location and discovery of valuable deposits preceded 1920.

Federally owned locatable minerals include valuable deposits of precious metals, base metals, industrial minerals (such as cement-grade limestone and bentonite) and uncommon varieties of building stone and other mineral materials.

The self-initiation feature of the Mining Law continued to serve the Nation's mineral industry well, as shown by the responsiveness of mining companies exploring the public land to locate mining claims as the outlook for locatable mineral commodities demands. For example, the coincidence of increased prices for gold and the discovery and refinement of the geologic model for "hot-springs" type gold deposits has led to a mining claim boom in Nevada as shown by Figure A.

Newmont Gold Mines located 40 miles west of Elko, Nevada, has surpassed the Homestake Mine in South Dakota as the largest producing gold mine in the United States. Fourteen of the top 25 U.S. gold mines are on, or partially on, land managed by BLM.

As increased interest in gold brought on by higher prices and a rebounding metals market cause greater activity, BLM will be challenged to provide for mineral development under multiple-use management while preventing any unnecessary or undue degradation of land to occur.

In Fiscal Year 1987, BLM accepted 146,638 mining claims and millsites for initial recordation under Section 314 of FLPMA. Annual filings of assessment work affidavits (or notices of intent to hold) served to hold 654,079 mining claims of record. Failure to file such documents annually is conclusive evidence of abandonment of the mining claim.

Under the surface management regulations administered by BLM, operators proposing to disturb the surface of public lands filed approximately 456 plans of operation (generally for disturbances of greater than 5 acres) and 1,860 notices (for lesser impacts) in Fiscal Year 1987. Reviews of the proposed activities ensure that no unnecessary or undue degradation of the public lands is likely to occur.

The BLM continued in Fiscal Year 1987 to emphasize its responsibility to promptly adjudicate mineral patent applications, reject or contest invalid mining claims, and issue patent to those mining claimants demonstrating a discovery of a valuable mineral deposit. As a result, 87,640 acres of mineral land passed into private ownership as patented lode or placer mining claims. Under the millsite provisions of the mining laws, 377 acres of nonmineral land were patented for uses reasonably incident to mining and milling purposes.

A caver negotiates a passage in a cave in Wyoming's Worland District.

# Land Programs

## Lands

During Fiscal Year 1987, BLM's lands program focused on:

- responding to State and local government requests for acquisition or use of public land for community expansion, recreation, and public-purpose activities;
- modifying land exchange processing to eliminate unnecessary requirements and streamline procedures;
- accelerating programs of State and private land exchanges to acquire important public values and access and to foster improved management of both Federal and nonfederal lands;
- transferring Federal land to States to satisfy indemnity (in-lieu) land entitlements that remained outstanding;
- reducing the backlog of land acquisition and use applications; and
- resolving cases of unauthorized use of the public lands.

The Recreation and Public Purposes Act authorizes the Federal Government to lease or convey lands at no cost to State and local governments for public recreation purposes, and to lease or sell lands to government and nonprofit entities for other public purposes at less than fair market value. In Fiscal Year 1987, BLM approved 111 applications under this act, involving 12,293 acres of public land.

Land exchanges (trading public land for State or private land) provide opportunities to simplify ownership patterns, improve respective management programs, acquire lands with high public values at little or no cost to the federal government, and meet both public and private needs. Consistent with the Administration's vision of Federalism—the return of authority and discretion to the local level of government—BLM's land exchange program helps State and local communities better manage their own lands for the betterment of their citizens. The land exchanges increase local control of resources and lands needed in order to be responsive to the needs of the people to support their own growth and well-being.

The amount of acreage conveyed through exchanges has climbed steadily from almost 70,600 acres in 1981 to 301,770 acres in 1986. In Fiscal Year 1987, 68 exchanges conveyed 322,837 acres of public land to state and private interests in return for 597,752 acres of their land.

As western states were admitted to the Union, they were granted Federal land for the support of common schools. In many cases, however, land due to the states had been preempted by settlement, mining claims, and Federal programs. Accordingly, Congress authorized the States indemnity (or in-lieu) selections for the preempted lands. Conveyance of such in-lieu land to the Western States has been accelerated rapidly in recent years: between 1977 and 1980, only 3,859 acres were transferred; from 1981 through 1986, a total of 366,287 acres were conveyed. With much of the work accomplished, 1987 transfers totaled only 2,178 acres. About 165,000 acres of the original, multi-million acre entitlement remain. BLM will process the balance as States present their applications.

Public lands trespass continues to be a problem. During Fiscal Year 1987, BLM identified and recorded more than 2,000 occupancy and agricultural trespasses on more than 30,000 acres.

Processing of Desert Land Act applications constituted a major workload in Idaho and Nevada during Fiscal Year 1987. BLM processed 195 applications during the year, reducing to 573 a backlog that once involved more than 6,000 cases.

BLM continued to make selected public lands available for sale to allow for community expansion and other purposes. Most of the land sold consisted of small, isolated parcels. Tracts are carefully selected through BLM's land-use planning process to ensure that sale is appropriate. During Fiscal Year 1987, 7,359 acres of public land were sold at the appraised fair market value.

## Withdrawals and Withdrawal Review

During Fiscal Year 1987, the Secretary of the Interior approved 22 withdrawals, encompassing 174,608 acres, for administrative sites, archeological and historic sites, wildlife refuges, experimental areas, scenic rivers, recreational sites, reclamation material sites, military reservations and test facilities, and a nuclear power site.

The Secretary also approved 14 revocations. Three of the revocations were under Section 204(a) of FLPMA for land exchanges and sales that were approved by legislation exempting them from the Preliminary Injunction in the *National Wildlife Federation* v. *Burford et al.* lawsuit that prohibited such actions. The other 11 revocations, affecting 74,785 acres in Alaska, came under Sections 22(h) and 17(d) of the Alaska Natives Claims Settlement Act, which permits selection by the State or conveyance to the Natives.

In Fiscal Year 1987, the Secretary also approved modifications of two existing withdrawals, one to transfer administrative jurisdiction of a prison and one under Section 17(d) of the Alaska Native Claims Settlement Act.

On July 15, 1985, the National Wildlife Federation filed suit in the U.S. District Court challenging the withdrawal and classification processes and actions taken by BLM since January 1, 1981, under Sections 202(d), 204(a), and 204(1) of FLPMA. A preliminary injunction was issued February 10, 1986, specifically prohibiting the Secretary of the Interior from modifying, terminating, or revoking, in full or in part, under FLPMA, any withdrawal or classification that was in effect on January 1, 1981; or taking any action inconsistent with the specific restrictions of any withdrawal or classification in effect on January 1, 1981.

This injunction impacted BLM's withdrawal review program to identify outdated withdrawals and return such lands to multiple-use management. Many such withdrawals and classifications were placed on public lands prior to passage of FLPMA in 1976.

This injunction also affected mining location and mineral leasing activities on public lands and slowed BLM's program to streamline its land management through exchange and sale of lands uneconomic to manage or lands needed by local or State governments for better management of their own programs. The suspension of many lands activities has significantly impacted many third parties, including individual citizens, local communities, and State governments throughout the West. Nationwide, many pending land exchanges and land sales were suspended including more than 250 Desert Land Entries, more than 500 sales and exchanges, nearly 1,000 mineral or Recreation and Public Purpose Act leasing actions, and recordation of 7,300 mining claims.

## Alaska Lands

In Fiscal Year 1987, BLM in Alaska patented more than 2.1 million acres of land to the State of Alaska, bringing the total acres transferred to 83.1 million. This conveyance process of lands to the State satisfies one of BLM's top objectives under terms of the Alaska Statehood Act. The other main land transfer program is to the various Native corporations created by the Alaska Native Claims Settlement Act. Title to approximately 700,000 acres has been transferred to Alaska Native corporations. The Native regional and village corporations have received approximately 35.1 million acres to date. In addition, continued efforts to transfer individual parcels of land to Alaska Natives successfully led to more than 380 certificates of ownership being issued under the Native allotment program.

During the fiscal year, BLM provided the Congress with information on the impact of submerged lands on current state and Native land selections.

The Alaska BLM was reorganized in November 1986. The agency structure was reduced from a three-tier to a two-tier organization, which resulted in a reduction of positions in mid-level grades. The reorganization is projected to bring an increase in dollars to the districts for field work.

Field surveys were completed for 280 Native allotments and small tracts, 822 miles of rectangular survey and 325 linear miles of Alaska Railroad right-of-way. Work continued in support of allowing placer mining to continue in the state. A special team was created to develop a court mandated EIS for four watersheds impacted by placer mining. Progress continued on the Environmental Impact Statement (EIS) for the development of a Gas pipeline, from the North Slope south to tidewater. Planning efforts for the Central Arctic Management Area/Utility Corridor continued with public hearings and draft review. The Fairbanks District Office construction commenced with a projected move date of 1988 from Fort Wainwright.

### Rights-of-Way

During Fiscal Year 1987, BLM authorized two major rights-of-way and 2,147 smaller rights-of-way for various purposes under the authority of FLPMA. BLM also authorized two rights-of-way for major pipelines and 417 rights-of-way for smaller pipelines and related facilities under the authority of the Mineral Leasing Act of 1920.

Final regulations were issued in Fiscal Year 1987 that provide for both cost recovery for FLPMA rights-of-way and for the collection of right-of-way rentals as required by Section 504(g) of FLPMA. Instructions were provided to BLM field offices on how to implement the above regulations and also on other matters, including the processing of applications for rights-of-way for hydropower purposes, which require simultaneous filings with the Federal Energy Regulatory Commission.

### Acquisitions

During Fiscal Year 1987, BLM acquired 128 easements for legal access, administrative use and rights of the public. In addition, 29 parcels were acquired in fee simple, using funds from the Land and Water Conservation Fund.

An access task force, established to evaluate the acquisition program and make recommendations to expedite or expand the program, completed its functions in Fiscal Year 1987. Recommendations received from that group will be used in developing methods to better utilize and augment existing funding to acquire easements and land.

## Recreation Management

Hunting and fishing have occurred on public domain lands for hundreds of years. Other kinds of recreational use began to accelerate as the population increased and shifted to the Western States. Availability of leisure time also increased. As a result, BLM initiated management programs to control the burgeoning recreational activities like sightseeing, picnicking, camping, hiking, hunting, fishing, and driving for pleasure.

The right to use public lands for recreation was recognized in the Taylor Grazing Act of 1935. However, it was not until the Classification and Multiple Use Act of 1964 that recreation was recognized as a major use of public lands. In 1976 FLPMA authorized BLM to manage recreation use on the public lands as an equal partner with other uses. Providing recreation as part of multiple use management pays the greatest return to the public because the benefits produced by other resources are not foregone. As contrasted with single use recreation areas, BLM's multiple use management of recreation allows benefits from resources such as minerals, timber, and forage to be achieved while recreation also continues.

In Fiscal Year 1987, public lands accommodated more than 56 million recreation visits, an increase of four percent over Fiscal Year 1986, and over 517 million visitor hours, an 82 percent increase. Management of this use was accomplished by on-the-ground presence of rangers and other visitor service personnel, by controlling use through off-road vehicle designations and a permitting system, and through heavy reliance on volunteers and cooperative management. During Fiscal Year 1987, 243,287 volunteer hours were contributed with a savings to the Federal Government of over 1.3 million.

BLM-administered rivers provide rafters excellent whitewater challenges.

Overall during Fiscal Year 1987, 52,770 camping and day-use permits were issued, a 4 percent decrease from Fiscal Year 1986. An additional 10,437 special recreation permits were issued, a 29 percent increase over the previous year. More than $1.4 million in fees were collected. This represents a 10 percent increase in camping and day-use fees collected, and a 20 percent increase in fees collected in the special recreation permit program.

Through Fiscal Year 1987, approximately 94.7 million acres of public land were open to off-road vehicle use (subject to special operating requirements), approximately 45 million acres were designated for limited off-road vehicle use, and approximately three million acres were closed to off-road vehicle use.

BLM currently manages:

- 1,381 miles of National Wild, Scenic and Recreational Rivers (16 rivers)
- 6,692 miles of floatable rivers
- 1,556 miles of National Recreation, Scenic, and Historic Trails (21 trails)
- 1,959 miles of trails
- 65,000 miles of roads suitable for recreation travel by normal vehicles and thousands of miles of primitive roads used for back-country exploring, hunting, fishing, etc.
- 420 developed and semi-developed recreation sites, including 5,893 camp units and 2,564 picnic units
- 438 boating access points
- 7 visitor centers
- 14 concession operations
- 85,000 miles of fishing streams
- 4,240,000 acres of lakes and reservoirs
- 275 special recreation management areas

BLM continued to develop cooperative agreements with State governments to manage or improve recreation resources on public lands. Arizona became the first BLM office to receive funds from the State of California Department of Boating and Waterways to improve the Squaw Lake Recreation Site.

Work continued on developing comprehensive management plans for the San Pedro area in Arizona, which was acquired in a land exchange in 1985. Plans are moving ahead to open this major recreation area to public use by 1989.

A major recreation area management plan was completed for the East Mojave National Scenic Area. This area is a significant use area in southern California.

Work was initiated on Recreation 2000—A Strategic Plan. The goal of this task was to look at where the recreation program should be by the year 2000 and to develop a new policy statement to guide the growth of the recreation program over the next 12 years.

## Cultural Resource Management

The cultural resource management program is a relative newcomer to BLM, tracing its origins to the National Historic Preservation Act (1966). The program's development accelerated after FLPMA established a basis for managing public land cultural resources in 1976. To date, nearly 150,000 archaeological and historic properties have been recorded on public lands, with 7,000 to 10,000 new entries being added each year.

Cultural resources are protected by numerous Federal statutes, including FLPMA, the National Historic Preservation Act of 1966, and the Archaeological Resources Protection Act of 1979. These laws establish the primary objectives of BLM's cultural resource program, which are the identification of the physical evidence of approximately 20,000 years of human occupation in the western hemisphere, the evaluation of the relative importance of these physical manifestations, and the determination of what management actions are appropriate for protecting the significant aspects of the cultural environment.

About 7.5 million acres of public land have been intensively inventoried for cultural resources. Presently, in excess of 4,000 sites have been determined eligible for the National Register, and 397 have been included in the National Register of Historic Places. In addition to numerous individual site stabilization and protection projects carried out in the past year, over 1.9 million acres of land, having some 83,000 cultural properties, were under protective patrol and surveillance.

A BLM archaeologist studies ancient pottery samples in New Mexico.

In Fiscal Year 1987, BLM placed continued emphasis on working with schools, civic groups, and archaeological societies to increase public awareness and understanding about cultural resources, the need to leave them untouched on the public lands, and the hazards of vandalism. BLM is actively seeking public cooperation in reporting thefts and vandalism and in refusing to buy stolen artifacts. Where education fails to deter pothunting and reduce vandalism, BLM vigorously enforces the Archaeological Resources Protection Act of 1979, which prohibits excavation or removal of archaeological resources without a permit, and also the sale, purchase, or transport of illegally removed remains. Amendments have recently been introduced that would extend the coverage of the Act to include the attempted destruction or looting of archaeological sites and that would make theft or looting a felony where the value of the artifacts involved is more than $500.

In 1987, BLM took over administrative control of the Anasazi Heritage Center in Dolores, Colorado, from the Bureau of Reclamation. BLM moved the archaeological collections from the Dolores Archaeological project into the facility. BLM continues to work with the Bureau of Reclamation, constructing exhibits in anticipation of a grand opening in the summer of 1988. The Anasazi Heritage Center will be managed as an interpretive center and repository for cultural artifacts of the Northern Anasazi, a prehistoric culture that flourished in the four-corners area of Colorado, Utah, Arizona, and New Mexico some 2,000 years ago.

BLM annually issues more than 400 permits to individuals, consulting firms, and educational institutions to complete various cultural resource surveys and impact mitigation work on public lands, generally for compliance with statutory planning and protection requirements. The decentralized permit system, in operation since Fiscal Year 1985, allows State Directors to administer applications and permits in a timely and responsive manner.

## Natural History Resource Management

Since 1931, scientific excavation of public lands near Cleveland, Utah, has unearthed more than 10,000 bones from at least 100 different animals that lived about 150 million years ago during the middle of the age of dinosaurs. Paleontological resources are administered under a variety of legislative mandates such as FLPMA, the Surface Mining Control and Reclamation Act of 1977, and the National Environmental Policy Act of 1969. These laws require the identification, management, and protection of scientific values and the preservation of important aspects of our Nation's natural heritage.

BLM wildlife biologists are on the lookout for the black-footed ferret, one of the rarest North American mammals.

BLM's paleontological resources management program provides for both scientific research and public educational use of fossils on public lands. In Fiscal Year 1987, 46 permits for paleontological scientific collection were issued. Fiscal Year 1987 also saw the completion of BLM's cooperative study with the National Academy of Sciences on issues affecting the collection of fossils on public lands. A final report has been prepared and BLM expects to use the report's recommendations as the basis for new collecting regulations.

## Wilderness Review and Management

Since 1976 BLM has designated 25 wilderness areas in eight States totalling approximately 450,260 acres.

FLPMA provides a legislative mandate for BLM to study the public lands for wilderness characteristics and recommend designation of such lands as wilderness areas to the President and Congress. Designated wilderness areas are managed under the authority of the Wilderness Act of 1964.

BLM completed its inventory in the Western States in November 1980. At the present time, BLM has 855 wilderness study areas containing approximately 25 million acres. Approximately two million acres in Alaska are included in a congressionally mandated wilderness study under the provisions of the Alaska National Interest Lands Conservation Act, with the study results and recommendations to be sent to Congress by December 1988.

By the end of Fiscal Year 1987, BLM had completed 90 percent of the field study work in wilderness study areas, with remaining field activities scheduled for Fiscal Year 1988. BLM completed 23 final environmental impact statements covering wilderness study areas during Fiscal Year 1987. At the present time, based on field study work, BLM has preliminarily identified that approximately 11 million acres are suitable for designation as wilderness as part of the National Wilderness Preservation System. Mineral survey work in these areas is under way, and BLM is working toward completing the remaining final environmental impact statements.

No new BLM wilderness areas were designated by Congress in Fiscal Year 1987. Congress did not act on the package of 30 areas submitted by the President in April 1985, and no new BLM wilderness packages were submitted in 1987.

During Fiscal Year 1987, BLM continued to emphasize strict enforcement and compliance with the mandates of FLPMA for all activities occurring in wilderness study areas to protect their suitability for wilderness designation. A number of special public outreach initiatives were implemented to better inform the public and users of the public lands what they may and may not do in these areas. BLM continues to utilize volunteers and conservation groups to assist in monitoring activities in wilderness study areas. In Fiscal Year 1987, BLM also stepped up its training programs to increase the capabilities of BLM personnel to better manage activities in wilderness study areas.

# Renewable Resource Programs

## Rangeland Management

### Range Management

Since passage of FLPMA, the range management program has broadened its focus beyond livestock grazing to include other, equally valuable, uses of the public lands. The range management program strives to protect and improve the rangeland resources while providing multiple use benefits. Sound land-use planning decisions are made in coordination, consultation, and coordination with range users, interest groups, and other interested parties at the national and local levels.

A major effort of the range management program has been to complete 144 environmental impact statements that address the impacts of livestock grazing on more than 170 million acres of public lands in 10 Western States. A total of 137 grazing environmental impact statements have been completed, including seven in Fiscal Year 1987. After a statement is completed, allotment management plans are prepared to identify specific on-the-ground activities to meet the resource management objectives identified during land-use planning. The BLM prepared 354 allotment management plans during Fiscal Year 1987.

In Fiscal Year 1987, about 4.6 million acres were inventoried using the ecological site inventory methods. The resultant data will be a basis for land-use planning, for identifying and supporting needed management actions, and for detecting changes in resource condition through monitoring studies.

Rangeland monitoring continues to be among BLM's top priorities. At the end of Fiscal Year 1987, there were 8,078 allotments with established monitoring systems. A national rangeland monitoring workshop was held in Denver, Colorado, in January 1987 for BLM managers and rangeland monitoring specialists, as well as other interested groups and individuals.

Range improvements continue to be an important part of the range management program. During Fiscal Year 1987, range improvements included development of 514 water facilities, construction of 597 miles of fencing, development of 95 management facilities, treatment of 93,471 acres of vegetation, and maintenance of 149 improvement projects.

BLM and the Forest Service continue to actively support the Experimental Stewardship Program, as authorized by the Public Rangelands Improvement Act of 1978. The purpose of the stewardship program is to foster innovation, cooperation, and better range stewardship, ultimately leading to improved condition of public lands. During Fiscal Year 1987, the 5th National Resource Stewardship Conference was held in Boise, Idaho, to establish stewardship goals to the year 2000.

A BLM range conservationist plants bullrushes in a stock watering reservoir to improve wildlife habitat.

The Experimental Stewardship Program continues to improve communication and cooperation between private range users and BLM and Forest Service personnel, and to increase pride in, and commitment to, the stewardship of public lands.

During Fiscal Year 1987, BLM, along with the Soil Conservation Service, Forest Service, and Extension Service, established a new Memorandum of Understanding for coordinated resource management. The purpose of this Memorandum of Understanding is to facilitate coordination of resource planning, management, and educational activities with State and local agencies, private landowners, and other interested publics for developing sound resource management and conservation programs. It is also intended to provide wider application of techniques and procedures developed through the Experimental Stewardship Program.

## Soil, Water, and Air Management

Soil, water, and air resource considerations are often key to both the short- and long-term objectives of other BLM programs. Identification or inventory of existing soil, water, and air resources is the initial step in providing information needed for multiple-use planning and management.

Soil surveys were completed on five million acres during Fiscal Year 1987, bringing the total number of acres inventoried to 136 million. The goal is to complete a soil survey on 157 million acres of public rangelands by 1990.

BLM continues to approach the Fiscal Year 1988 goal for quantifying existing water uses. During Fiscal 1987, 7,400 sources were added to data bases used for recording water right filings with the States. Filings were made by BLM to the states for those water sources needed to provide for management of the public lands.

The completion of 45 watershed improvements in Fiscal Year 1987 provided for reduced erosion and sediment yields, streambank and channel stabilization, and salinity control. Maintenance of existing improvements continues as an ongoing effort, with 160 projects being completed in 1987. Approximately 2,800 watershed stations were monitored to assess progress toward meeting soil and water management objectives.

During Fiscal Year 1987, BLM submitted a report to Congress entitled "Salinity Control on BLM-Administered public lands in the Colorado River Basin." The report outlines a comprehensive program for minimizing salt contributions in the Colorado River from lands administered by BLM. In Fiscal Year 1987, the BLM also completed a comprehensive water rights assessment for in-stream flow requirements for Beaver Creek National Wild River in Alaska.

A wilderness baseline monitoring project was initiated in Fiscal Year 1987 to test and demonstrate monitoring techniques and develop monitoring plans for management of BLM wilderness areas and wilderness study areas. This pilot project will enable development of a monitoring plan format for use in Wilderness Management Plans.

The air resource program supports the operation of more than 28 Remote Area Weather Stations to provide climatic information for use in a wide variety of management activities. BLM's energy and mineral development activities, smoke management, and other programs are aided by the air modeling capabilities of the air resource program.

BLM's air resource program continues to play a key monitoring role in the National Acid Precipitation As-

This storage facility provides needed water for grazing allotments near Whitewater, Colorado.

sessment by operating 15 acid rain monitoring stations at remote locations in nine Western States. These stations provide data essential for the development of acid precipitation maps used to determine trends and possible impacts of acidic deposition in the Western United States.

## Forest Management

Approximately 90 million acres of BLM-administered lands are forested. Most of these lands are in Alaska; however, some 26 million acres lie within the lower 48 States, including 21 million acres of woodlands and 5 million acres of commercial forest lands, capable of producing high quality commercial timber.

In western Oregon 1.143 billion board feet of timber were offered and sold during Fiscal Year 1987 and 1.239 billion board feet were harvested. On public lands outside western Oregon, BLM sold 92 million board feet of timber and offered and sold enough firewood to heat 40,000 homes. BLM also sold 90,000 Christmas trees in Fiscal Year 1987. Receipts from Western Oregon timber sales in 1987 totaled $117.9 million.

The Federal Timber Contract Payment Modification Act requires the Secretary of the Interior to include in this report any actions that discourage bidding such that a purchaser is unable to perform contracts or any bidding that leads to speculation. In the process of monitoring bidding practices, BLM has discovered no evidence that indicates abuses. All timber sale contracts currently being purchased are being performed, and there is no evidence of speculative bidding. Rules implemented in 1982, requiring up-front cash deposits and scheduled payments and establishing procedures to offer more short-term contracts, have been effective. However, BLM will continue to monitor bidding practices.

The Noxious Weed EIS was published in March 1987. In July, hearings were held on a motion to partially lift an injunction, by a court in Oregon, against the use of herbicides. A ruling is expected that may allow Oregon to go forward with a noxious weed program in Fiscal Year 1988.

Trees were planted on about 27,670 acres in western Oregon, and reforestation was completed on 2,550 acres in other areas. In addition, 27,000 acres in western Oregon and 2,200 acres elsewhere were managed using intensive forest management practices.

## Wildlife and Fisheries Habitat Management

In Fiscal Year 1987, the BLM wildlife and fisheries program achieved a milestone by completing a strategic plan for the program entitled "Fish and Wildlife 2000." This plan outlines the direction of BLM's wildlife and fisheries program between now and the year 2000. Also, it provides for increased understanding of BLM's approach to management of fish and wildlife resources and the results of management. As a part of this effort, interdisciplinary teams involving both biologists and managers have been established to develop strategies for implementing specific goals and objectives, including waterfowl habitat, raptor habitat, fisheries, and expansion of outside contributions.

BLM manages extensive and diverse habitat for more than 3,000 wildlife species, including 140 threatened or endangered plant and animal species and some 870 species that are candidates for Federal listing. The BLM ensures that the needs of these and other key fish and wildlife species are considered in land-use planning and decisionmaking. Further, the BLM works in partnership with State wildlife agencies to ensure conservation and rehabilitation of wildlife habitat under the Sikes Act and FLPMA. FLPMA itself identified fish and wildlife habitat development and utilization as one of the six principal or major uses of the public lands.

BLM's responsibilities include managing wildlife habitat on public lands.

During Fiscal Year 1987, BLM initiated a pilot Sikes Act stamp program with the New Mexico Department of Game and Fish. Also, consultation was initiated in Alaska, Colorado, Montana, and Wyoming concerning pilot stamp programs in those States.

During Fiscal Year 1987, BLM constructed 687 fish and wildlife habitat projects, such as water facilities, fences, den and nest facilities, seedings, and instream flow structures, bringing the total since 1982 to 3,210.

Habitat improvement projects are delineated in habitat management plans. These plans, cooperatively developed with state wildlife agencies and conservation organizations, focus on areas with significant fish and wildlife resources. Through Fiscal Year 1987, the BLM prepared or revised 400 habitat management plans encompassing 50 million acres. Of these, 115 have been fully implemented while 285 are in the process of being implemented. Also, through Fiscal Year 1987, 73 recovery plans have been prepared (50 animals, 16 plants) and an additional 12 are under development.

In addition, rangewide management planning was conducted for the desert bighorn sheep and the desert tortoise. BLM manages about 90 percent of the remaining habitat for desert bighorns and over half of the remaining habitat for the desert tortoise.

In support of land-use and management efforts, 20.2 million acres of fish and wildlife habitat, including habitats for threatened or endangered species, were inventoried. Monitoring of fish and wildlife habitat is conducted to determine whether fish and wildlife habitat management objectives are being met in BLM land-use and management activities. A total of 1,260 plans were monitored in Fiscal Year 1987.

## Wild Horse and Burro Management

A record number of wild horses and burros—more than 12,000—were adopted in Fiscal Year 1987. This was the first year that the number of adoptions exceeded the number of excess animals removed from the range.

Wild horses and burros are managed under the provisions of Public Law 92-195, as amended, generally referred to as the Wild Free-Roaming Horse and Burro Act. Major accomplishments in the program in Fiscal Year 1987 were the removal of 11,521 excess wild horses and burros and the adoption of 12,776 animals. This number of adoptions allowed BLM to reduce the number of animals in holding facilities from more than 10,000 at the start of the fiscal year to about 7,000 at the end of the year.

As a result of the roundup of more than 11,500 excess animals, the total population of wild horses and burros on public lands decreased to 43,200. This continued the steady progress begun in Fiscal Year 1985 towards the estimated appropriate management level of 30,000 animals.

The appropriate management level for each area is established through BLM's resource management planning process. (Areas used as habitat by wild horses and burros in 1971 are called herd areas; areas where animals will continue to be maintained are called herd management areas.) Through the planning process, decisions on whether to maintain wild horses and burros in the long term have been made for 267 of the 270 herd areas. To date, 199 of these have been identified as herd management areas, and the decision has been

Horses on the Pryor Mountain Wild Horse Range in south central Montana. The Bureau of Land Management administers the range, which was the first one established in the U.S.

Fiscal year 1987 brought homes to 12,776 wild horses and burros, making it a record-setting year for adoptions since the beginning of the program in 1973.

made to remove wild horses and burros from 68 herd areas.

When wild horse and burro populations in a particular area are greater than the appropriate management level for that area, the excess animals must be removed. The maintenance of unadopted excess wild horses remained a significant and costly problem in Fiscal Year 1987. By law, excess wild horses and burros must be removed from the range immediately and disposed of in the following order and priority: old, sick, or lame animals are humanely destroyed; healthy animals are made available for adoption; and unadopted excess animals are to be destroyed in the most humane and cost efficient manner possible. However, since 1982 the BLM has maintained a voluntary moratorium on destruction of healthy animals. To lessen the need for long-term Government maintenance of unadopted animals, the Director can reduce or waive the adoption fee for animals unadoptable at the standard fee. In Fiscal Year 1987, fee waivers accounted for approximately 8,000 adoptions.

The cost of maintaining unadopted wild horses, together with other concerns about the administration of the wild horse and burro program, led the Secretaries of the Interior and Agriculture to establish a Wild Horse and Burro Advisory Board in February 1986. The Board met three times in Fiscal Year 1986 to study the program and to hear testimony from Government officials and interested groups and individuals.

In December 1986, the Board met in Washington, D.C., and presented a report to the Secretaries. The report contained 21 recommendations in the areas of wild horse and burro management, disposition, research, and legislation. The central recommendation proposed a five-step process for the disposition of excess wild horses and burros. The objective of the first four steps was to place the animals in private care. Step five provided for destruction of animals not placed through the other steps.

The four steps endorsed by the Board for placement of excess animals in private care included the regular adoption program at full fee, special adoptions at reduced or waived fees, training of wild horses by inmates at state prisons, and private sanctuaries. All but one of these steps were in operation in Fiscal Year 1987. The sanctuary concept, which required private sponsorship and funding, was the only step that was not implemented.

Neither the regular adoption program nor adoptions at altered fees were new approaches. A 1984 regulation had given the Director of BLM authority to waive or modify the fee for unadoptable animals. However, prior to Fiscal Year 1987, this authority was generally used only in transactions involving a minimum of 100 animals. In 1987, BLM's Eastern States Office experimented with making older wild horses available at reduced fees to individual adopters at satellite adoptions.

The third step suggested by the Board was the inmate-wild horse training program, which originated in Colorado. This type of cooperative effort between a State Department of Corrections and the BLM provided meaningful work for prison inmates while at the same time making wild horses more adoptable by halter breaking them. The states of California and New Mexico also entered into prison training agreements with BLM in Fiscal Year 1987, and other states were considering similar programs.

The Secretary of the Interior approved the Board's recommendations in March 1987, and the BLM drafted a policy statement that incorporated the recommendations. In April, BLM asked for public comments on the draft policy statement. About 5,000 written comments were received by the deadline. Most commenters focused on the five-step disposition process, and the overwhelming majority opposed step five, the destruction of unadopted healthy animals. By the end of Fiscal Year 1987, the BLM had completed a detailed analysis of the public comments, but had not yet developed a final wild horse and burro program policy statement.

One outgrowth of the Advisory Board's report was a marketing study of the adoption program, prepared in response to one of the Board's recommendations. A contract for this study was awarded in April, and the study was completed in July. The report contained recommendations for both long-term and short-term program improvements. As Fiscal Year 1987 ended, the study was under review, and a strategy for implementing the most feasible recommendations was scheduled for development in Fiscal Year 1988.

Another accomplishment in Fiscal Year 1987 was a technical review of the wild horse and burro program. Over the past three years, the growth of removals and adoptions made it apparent that some procedures for capturing, transporting, preparing, maintaining, and finally adopting wild horses and burros, required revision. Many of the existing procedures, while adequate when dealing with fewer animals, were not effective for larger numbers of animals. To identify and improve inadequate procedures, BLM conducted a technical program review in January 1987. Thirty-two recommendations to enhance program procedures were proposed. These recommendations will be incorporated in wild horse and burro program guidance to be developed in Fiscal Year 1988.

The BLM sought new contract proposals for wild horse maintenance for Fiscal Year 1988 because the original contracts were scheduled to expire at the end of Fiscal Year 1987. A protest delayed the process and it was necessary to extend the existing contracts through December 31, 1987. The award date for the new contracts was expected to be December 1, with a startup date of January 1, 1988.

Contracts for two research projects remained in effect during Fiscal Year 1987. One, investigating paternity patterns in selected horse herds, sought to determine the extent of paternity by the lead stallions in breeding bands of wild horses and the extent of genetic diversity among horses within herds. This information will enable evaluation of the extent of inbreeding in horse herds and the possible effectiveness of stallion-focused methods of fertility control. Collection of data was completed in the fall of 1986, with the final report due in November 1987.

The other contract dealt with methods of fertility control in wild horses. Pen trials were conducted in 1986 and early 1987 to determine effective compounds, dosages, and methods of implantation for estrus control in mares. Based on the results of these trials, fifty mares in each of two herds were implanted, marked, and fitted with radio-transmitter collars. Another fifty mares in each of two herds were implanted with empty carriers to serve as controls. Foaling rates in the treated and control bands will be monitored for 3 years and compared to estimate effects on reproduction. Additional data on band composition and stability will be available as well.

Stallion-focused fertility management is being studied in two other herds. In each of these herds, dominant stallions from 20 bands were captured, sterilized, marked, and released. Foaling rates in these bands will be compared to rates in untreated control bands.

The most significant judicial action in Fiscal Year 1987 was a court ruling enjoining BLM from titling wild horses adopted through power-of-attorney, fee waiver transactions in situations where the adopter expressed the intent "upon granting the title, to use said animals for commercial purposes." The Department of Justice filed a protective notice of appeal of this ruling on behalf of the Department of the Interior.

Four other suits were outstanding during Fiscal Year 1987, and one case remained inactive. In March, the Supreme Court let stand without comment an appeals court decision that had overturned a ruling holding the Federal Government responsible for damages to private land by wild horses. Other issues in this case, which originated in 1979, had been settled previously.

The remaining three active cases were filed over a five-year period by a family in Nevada. Two of the suits were closely related; and in one, the plaintiffs successfully sought to set aside the BLM's land-use planning decision for managing wild horses on the Reveille Allotment. The BLM complied with a November 1986 court ruling that the agency determine an appropriate management level for the herd area and remove excess animals. In January 1987, the Department of Justice filed a notice of appeal on behalf of the Department of the Interior. Meanwhile, representatives of BLM and the plaintiffs began negotiations in an attempt to arrive at an overall settlement of the issues in two of the three lawsuits. By the end of the fiscal year, substantial progress had been made in this effort; and on October 1, 1987, a memorandum of understanding was signed by all parties, agreeing to take the necessary legal steps to effect a stipulated settlement. In the third suit, there were no developments in Fiscal Year 1987 in the plaintiffs' pursuit of judicial review of an Interior Board of Land Appeals decision regarding range improvement modifications that excluded wild horses from water use.

# Support Services

## Law Enforcement and Resource Protection Operations

Areas of enforcement that have received particular emphasis since establishment of the law enforcement program in 1976 include investigation and eradication of cannabis cultivation; prevention of theft, destruction, and sale of protected archaeological resources from public lands; investigation of oil and gas theft; and wild horse and burro violations.

Since the passage of the Federal Land Policy and Management Act of 1976, BLM initiated a law enforcement and resource protection operations program that utilizes special agents and law enforcement rangers, all well trained in law enforcement, to enforce laws pertaining to the public lands and their resources.

Where appropriate, law enforcement agreements with local officials are also used to enforce laws or ordinances of the respective State or subdivision upon public lands. BLM law enforcement officers perform a full spectrum of patrol and investigative duties and are authorized to enforce all Federal laws and regulations pertaining to use, management, and development of the public lands and their resources.

During Fiscal Year 1987, BLM special agents and law enforcement rangers continued efforts with other Federal, State, and local agencies to eradicate cannabis on public lands in California, Oregon, and other Western States. BLM also increased its efforts to enforce the Archaeological Resources Protection Act of 1979 by emphasizing the investigation of destruction, theft, and sale of archaeological artifacts.

BLM employees assist in a raid on a marijuana field on public lands.

## Cadastral Survey

Under 43 USC 2, BLM's Cadastral Surveying Division has the ultimate responsibility for all Federal surveying. Its work, therefore, extends beyond the survey and resurvey of public lands, authority for which goes back to the Land Ordinance of 1785. With perfecting changes, its rectangular principles were enacted into law under the Constitution in the Public Lands Act of 1796 and have been carried forward to 43 USC 751. Consequently, there is a nationwide dimension to BLM cadastral surveying. Its crews are in the field from Florida into Maine, from Maine into California, and from California into Alaska. BLM's cadastral surveyors continue to introduce changes in their ancient art to take advantage of emerging technology.

BLM maintains all official Public Land Survey System records covering 30 States. Because private surveyors are constantly making resurveys and subdivisional surveys, these records are in steady demand as the basis for the new surveying, even in States which have long since ceased to be public lands States.

Field accomplishments during Fiscal Year 1987 include surveying nine million acres, of which 7,500,000 acres were original surveys and 1,500,000 acres were resurveys. Ninety-nine percent of the original surveys were Alaska Statehood grants or Alaska Native Claims grants; the remainder were mostly public lands and Indian lands. The resurveyed acres were principally public lands and national forest lands but included Indian lands and Federal reclamation lands.

To provide on-the-ground identification and to yield simple, precise descriptions for legal records for the 9 million acres, BLM surveyors ran 17,000 miles of survey lines, marked them with 23,000 monuments, and filed 1,200 sets of plats and field notes, the definitive legal record of the surveys. In Alaska one-third of the original surveys and many special surveys were contracted to private survey firms. BLM directed the work and approved the plats and field notes after ascertaining that the survey was done in accord with *The Manual of Surveying Instructions, 1973.*

BLM surveyors cooperated with a five-State consortium of professional land surveying societies in Kansas, Nebraska, Colorado, Wyoming, and South Dakota in finding the Initial Point of the Sixth Principal, lost for many years under the pavement of a road junction on the Kansas-Nebraska State line, which is also the meridian's baseline. State officials and the local public joined in the official remonumentation, held June 11, 1987, the anniversary of its establishment. The official restored monument was set in a receptacle recessed in the road junction pavement. In addition, a sizeable commemorative monument was dedicated immediately east of the official marker. The Sixth Principal Meridi-

an's Initial Point is notable because more public land was surveyed, or is likely to be surveyed, from it than from any other of the 35 Initial Points.

Public land survey system geographic coordinates were provided for the nine-township test project for the Automated Land and Mineral Record System conducted at BLM's Farmington Resource Area in New Mexico. The Farmington Resource Area project staff has used the data yielded by the test and has successfully demonstrated its usefulness in daily work.

In addition, a full-time staff position was established in the Washington Office to provide program guidance and support for assigning latitude and longitude coordinates for corners of the Public Land Survey System. Such coordinates are necessary for the automated Land Information System before it can be fully integrated with the Automated Land and Mineral Record System.

The Cadastral Surveying Division cooperated with New Mexico State University in launching a four-year course in surveying. Under an Intergovernmental Personnel Act agreement, a senior BLM Spanish-speaking geodesist has joined the university faculty to formulate a four-year course in surveying. Completing such a course will soon be required for future professional accreditation in New Mexico.

Marked progress was achieved in the transition from manual to automated processes for the preparation of plats and field notes. Automation reduces the former time-consuming manual preparation, while maintaining the meticulousness that must characterize plats and field notes as authoritative records of the survey.

## Fire and Aviation Management

The BLM Fire Management Program set several records this fiscal year, in terms of minimized resource damage to timbered lands in western Oregon, mobilization of firefighters and other firefighting resources, and safety achievement. At the same time, the BLM Aviation Management Program experienced only one aircraft accident and no serious injuries in more than 25,000 hours of flight time. The aviation program also gained five new technical specialists for training, safety, and general aviation technical assistance.

### Fire Management

Fire has always been a part of the natural environment. With that in mind, BLM sees fire from two different aspects—wildfires that cause negative impacts and must be suppressed, and prescribed fires that can be used to achieve positive resource management objectives. In a change from the days of total wildfire exclusion on public lands, BLM today uses fire as a major tool in accomplishing multiple-use objectives, while totally suppressing only the damaging and unwanted wildfires.

BLM is responsible for fire management on more than 350 million acres of Federal and nonfederal lands in the 11 Western States and Alaska. The fire program also continues to develop new technology in ground equipment, aircraft, and computer technology.

In addition, BLM manages the Boise Interagency Fire Center in Idaho. This is the national fire support center, providing support to agencies of the Departments of Interior and Agriculture, and to the Department of State (for assistance to foreign countries), as well as to the State governments.

During Fiscal Year 1987, BLM had nearly 3,000 wildfires, far exceeding the normal annual average of 2,350 wildfires. But the acreage burned, 497,000 acres, was barely half the normal one-million acres burned in an average year.

The 1987 fire season was characterized by the third year of drought in the Western United States. As early as May, provisions were made to increase firefighting capabilities in Arizona, California, and Oregon. By the end of August, normal fire occurrence and effective fire suppression for three months had left all wildland firefighting organizations thinking the worst would not happen, despite the severe drought conditions.

Beginning the last two days of August and continuing in early September, the Western United States, especially California and southern Oregon, were overwhelmed by the heaviest lightning storms of the season. The dry lightning, coupled with the drought conditions, resulted in the worst and most damaging fires in recent history.

Mobilization of firefighting crews and other resources was unprecedented both in quantity and in the short timeframes involved. The suppression effort involved personnel from 42 States, Puerto Rico, and Canada. At the peak, nearly 25,000 firefighters fought the many wildfire complexes. Both Oregon and California activated the Army National Guard for support, and a battalion of the Seventh Infantry Division, 6th Army at Fort Ord (more than 600 soldiers) was also trained and deployed for firefighting.

The Boise Interagency Fire Center also had a record year in 1987, providing support to suppression efforts on 1,600 wildfires. The Fire Center moved nearly 32,000 personnel, including 1,333 20-person crews, utilizing contract, commercial, and military aircraft. There were 46 Interdepartmental Class I Overhead Team assignments. In addition, the Center supported 60 nonfire and foreign incidents with personnel, communications equipment, and supplies. Foreign nations receiving support included Africa, Argentina, China, Yemen Arab Republic, and Canada.

The safety record achieved by BLM firefighters in 1987 was outstanding. More than 1.8 million hours were worked on firelines with no fatalities and no major accidents. The Fire Management Program received

A firefighting crew awaits orders for the day.

Firefighters examine an area a wildfire swept through.

awards from both BLM and the Department of the Interior for accomplishing this feat.

BLM also participated in the National Wildland/Urban Interface Initiative during Fiscal Year 1987. The Initiative is co-sponsored by the Department of the Interior (through BLM), U.S. Forest Service, National Fire Protection Association, and U.S. Fire Administration. The increase in construction of homes in and near wildlands has become a very important factor in wildland firefighting. When wildfire strikes, the priority becomes protection of private buildings instead of public resources, such as timber, grazing lands, and recreation areas. And the potential for loss of human life becomes frighteningly high. While the mission of Federal wildland firefighters is to protect wildland resources, they are increasingly forced to sacrifice control of a wildfire to defend homes.

Reduction of fire hazards in this setting will require more than just individual action by homeowners to reduce fire hazards on their own property, although that is a very important goal of the Initiative. It will also depend on the cooperation of a variety of entities, including county zoning departments, architects, real estate agencies, and insurance companies. The purpose of the National Wildland/Urban Interface Initiative is to increase community awareness of the inherent wildfire hazards attached to living in or adjacent to the wildlands, and to work toward making the changes that could resolve these problems.

Significant progress also occurred during Fiscal Year 1987 in the area of communications and automated data systems. BLM continued to develop the Initial Attack Management System (IAMS), changing its communications system was moved from phone lines to satellite, resulting in major cost savings.

Prescribed fire use in BLM increased significantly in Fiscal Year 1987. There were 728 projects completed that burned 101,754 acres. As is normal, the majority of the activity, more than 500 projects, was in support of forestry management in western Oregon. Of the acreage burned, 47,000 acres were burned to accomplish range improvements, and 28,000 acres were burned to benefit wildlife.

Fire rehabilitation costs on damaged soil/watershed areas were $3.63 million, distributed among 65 projects. These fire rehabilitation efforts included reseeding of grasses or shrubs, construction of protective fences or dams, and installation of culverts and other drainage devices.

## Aviation Management

During Fiscal Year 1987, the natural resource programs in BLM accumulated over 25,000 hours of flight time at a cost of $14.59 million. Firefighting activity accounted for 74 percent of the cost.

To enhance the management support required by this level of aviation activity, BLM added three technical specialists to State Offices in Arizona, California, and Idaho; and an aviation training development specialist and an aviation safety specialist to the Boise Interagency Fire Center. These personnel are available to provide a wide range of technical expertise in the aviation management and safety fields to all BLM offices.

BLM's aviation safety record for Fiscal Year 1987 was only one accident on 25,000 hours of flight time. A helicopter was destroyed in this accident, but the occupants suffered only minor injuries.

## Engineering Services

When BLM was established in 1946, it inherited its physical facilities from its parent agencies, the General Land Office and the Grazing Service along with a primitive road system that reflected the miscellaneous needs of ranchers, mining companies, railroads, and county and State governments. Since the mid-1960s, BLM has constructed numerous roads and trails necessary for administration of the public lands. Where suitable leasable office and other facilities are not available, BLM has constructed its own office buildings, warehouses, shops, and other facilities tailored to the agency's resource management responsibilities.

In Fiscal Year 1987, BLM completed about 70 percent of the construction of the new Fairbanks, Alaska District Office complex, as well as numerous smaller projects, such as major road maintenance, recreation site work, and building repair work. In addition, a plan was developed for an extensive long-range maintenance inventory and condition survey planned to begin in Fiscal Year 1988.

BLM provided maintenance to about 140 office buildings, more than 800 other BLM-owned buildings and associated water and sewer systems, approximately 800 developed family unit recreation sites, 5,000 undeveloped (without water) sites, approximately 10,000 miles of roads, more than 1,000 miles of trails, and 30 bridges.

With Fiscal Year 1987 completions, BLM has available 1:100,000 scale surface and subsurface maps providing coverage for approximately 90 percent of the lands administered by BLM. Photogrammetric and remote sensing support was provided by a central office at Denver as well as within each State. Automation of cartographic functions was continued in Fiscal Year 1987 and has become an integral part of BLM's Automated Resource Data System.

Additional support was provided through survey and design of various range improvement and watershed construction projects. BLM continued its dam inventory and hazard assessment programs in Fiscal Year 1987.

A BLM employee of the Boise Interagency Fire Center - the national wildfire suppression center located in Idaho - plots geographic positions of Remote Automated Weather Stations. Remote weather information, in conjunction with the Automatic Lightning Detection System, which records nearly every negative ground lightning strike in the West and Alaska, allows incident commanders to make quick, accurate fire suppression decisions.

## Information Resources Management

Within BLM, Information Resources Management includes automated data processing (including security), telecommunications, and records. The Information Resources Management staff is currently involved with rapidly growing technology and rapidly increasing demands for automation to support resources management on the public lands.

BLM is acquiring additional computer resources to support its State Office minicomputers and its mainframe computer in Denver, Colorado. New PRIME minicomputer systems in State Offices, District Offices, and Resource Areas and numerous microcomputers Bureauwide are bolstering BLM's evolving automation requirements. Graphics applications, both for Geographic Information Systems and business purposes, have exploded at an astonishing rate.

Automated data processing security is of growing concern to BLM. Security reviews were conducted in three States during Fiscal Year 1987, in conjunction with information systems reviews. BLM's security plan was completed and submitted to the Interior Department during Fiscal Year 1987.

During Fiscal Year 1987, BLM reduced its use of the more traditional dedicated land line circuit in favor of fiber optic circuits and leased satellite service, which under some circumstances are less expensive. For example, BLM replaced a tactically important, terrestrial fire management data network with leased satellite service, and in doing so, reduced the annual recurring cost by 40 percent ($200,000).

In addition, BLM reduced its subscription to consolidated telephone service, provided in major metropolitan areas by the General Services Administration, in favor of BLM-owned and maintained systems. Savings of $1.6 million dollars are anticipated over the next 10 years.

In Fiscal Year 1987, BLM's records management achievements included a cooperative program with the National Archives and Records Administration to develop an original method for cross-referencing old and new land patent case files. The results will enable public researchers to know that updated information concerning an original patent exists in BLM.

After a four-year project, BLM issued a new and revised records retention and disposition schedule. This schedule lists all known categories of BLM records, where they are located, on what media they exist, whether they are permanent or temporary, and how long they are to be maintained.

A Land Information System concept was adopted in Fiscal Year 1987. This system ensures that separate users shared in common development efforts for their respective automated records, resources, and coordinates data, rather than creating independent systems requiring unnecessarily expensive interfaces. In addition, extensive coordination efforts with other Federal agencies, State and local governments, industry and public interest groups were expanded in Fiscal Year 1987 to ensure a broad understanding of how this BLM automated data can be used by others.

## Volunteers and Other Contributed Services

BLM's Volunteer Program continued its steady growth during Fiscal Year 1987. The hours of work contributed by unpaid citizen volunteers for the public lands increased by 44 percent over Fiscal Year 1986, and the number of volunteers increased by 17 percent.

During 1987, BLM's field managers reported that more than 9,000 volunteers contributed approximately 570,000 hours of work (the equivalent of approximately 317 workyears) valued at more than $5.3 million. Incidental costs to the government associated with this activity were estimated at approximately $605,000, indicating a costs-to-benefits relationship of about 9 to 1.

Volunteers serving with BLM received 2 of 18 President's Volunteer Action Awards for 1987, widely considered the most prestigious award for volunteer service in the United States. BLM's two winners, selected from among approximately 2,000 nominees nationwide, are Jack A. Glover, of Roseburg, Oregon, and the Fraternity of the Desert Bighorn, based in Henderson, Nevada. Glover, and two leaders of the Nevada wildlife conservation group, Wilford and Penney Allen, received the awards from President Reagan at a White House luncheon on June 30.

During Fiscal Year 1987, BLM for the first time asked field officials to report statistics for "hosted workers"—defined as persons who do work that assists BLM for which they are paid wages by some agency other than BLM. These workers are not considered to be volunteers, since the agency defines volunteers as persons who contribute their services to BLM and receive no pay for their work from any source.

One example of such a hosted-worker program that BLM officials are utilizing is the Senior Community Service Employment Program, a federal program through which low-income older people can work and be trained on the job up to 20 hours a week at minimum wage for public or community service organizations. Other examples are State or local government work programs for unemployed young people, such as the California Conservation Corps; the Job Training Partnership Act program through which unemployed workers receive on-the-job training; and military programs under which local units can occasionally do work primarily for training purposes, such as building a bridge or other facility, that also benefits public land users.

In 1987, field managers reported they were assisted by 1,500 hosted workers, who served more than 147,000 hours (the equivalent of 82 workyears) and accomplished work valued at nearly $1.3 million. Since incidental costs were estimated to total $82,000, the indicated costs-to-benefits relationship of the hosted-worker program was approximately 15 to 1.

In Fiscal Year 1987, BLM attracted a combined total of 10,550 supplemental workers (both volunteers and hosted workers), who provided a total of approximately 718,000 hours of work (399 workyears). Total value of this work is estimated at more than $6.58 million, and incidental costs at $687,000.

Both volunteers and hosted workers assisted in a diversity of ways and provided many different skills and interests. Recreation-related work attracted 34 percent of all supplemental-worker assistance. Among renewable resource activities, wildlife projects attracted 13 percent of the assistance; wild horse and burro management, 9 percent; forestry, 5 percent; range-improvement, 3 percent; wilderness review and management, 2 percent, watershed/hydrology, 1 percent; and other renewable resources work, 3 percent. Historic and cultural resource protection projects attracted 10 percent. Energy and minerals work accounted for 2 percent; operations activities, 10 percent (including construction work, 4 percent, and resource protection activities, 2 percent); and administrative support work, 8 percent.

During the year BLM developed and tested its first training course in Volunteer Program Management. The training package, developed by a Bureauwide working group in cooperation with BLM's Phoenix Training Center, includes guidance on recruiting and effective use of hosted workers, as well as of volunteers.

## General Administration

### Administrative Services

During Fiscal Year 1987, BLM spent $79 million for goods and services. Expenditures totaled $37 million for contracts valued at $25,000 or more and $42 million for small purchases.

BLM continues to exceed its goals in various socio-economic procurement programs, as shown in Table A.

Table 3
BLM Procurement Program
Fiscal Year 1987

| | FY 1987 Goal ($000) | Actual Award ($000) |
|---|---|---|
| Small Businesses | 49.0 | 57.1 |
| Women-Owned | 1.3 | 1.6 |

In August 1987, BLM implemented the Bankcard Pilot Program with the issuance of nearly 400 U.S. Government Mastercards by the U.S. Department of Commerce and the Rocky Mountain Bank. The card is intended primarily as an efficient tool for over-the-counter purchases up to $1,000 by field personnel who are heavy users of SF-44s, the imprest fund, and Blanket Purchase Agreements. The card is also used by warranted procurement personnel to place telephone orders up to $1,000, and by cadastral survey and fire crew chiefs to purchase meals and lodging up to $2,500. The Bankcard Program is authorized under Section 15 of the Office of Federal Procurement Policy Act, as amended. The Act authorizes the Administrator of the Office of Federal Procurement Policy to develop innovative procurement methods to be tested by selected executive agencies. The program will be evaluated in Fiscal Year 1988 and recommendations will be made whether to implement the program permanently.

BLM implemented an Automated Fleet Management System during Fiscal Year 1987. This system provides improved management data for all user levels while reducing costs to update the system. BLM was also selected to implement and operate a Departmentwide Fleet Management System for other bureaus. This is scheduled for implementation in Fiscal Year 1988.

BLM developed Bar Coding parameters during Fiscal Year 1987 to enhance the Automated Personal Property System, to improve management's control over personal property, and to reduce the costs associated with inventorying and controlling personal property.

In Fiscal Year 1987, BLM participated in a General Services Administration test of a Generic Real Property System for executive agencies. As a result of this test, BLM will implement the new automated system in Fiscal Year 1988 to provide more current information for managing BLM-owned and leased real property and to improve reporting of real property assets.

In July 1987, BLM released a solicitation for a single source-supplier to manufacture, inventory, distribute, and account for all BLM uniforms. This initiative was based on BLM's decision to improve the professional appearance of employees with high public visibility. The new contracting system provides a guarantee of item availability, uniformity in design and style, improved quality and durability of components, an improved uniform allowance authorization system, timely shipment of uniforms to BLM offices, and accountability of allowances and items.

Changes to the uniform policies include introducing a new color (BLM taupe) for all top weight garments (blazers, jackets, vest, baseball caps, etc.), adding components to meet the needs of the uniformed wearers, allowing a broader segment of personnel to wear the uniform, clarifying uniform classifications and authorized components, and prescribing procedures for obtaining and wearing the uniform properly. The new uniforms will be available in the spring of 1988. We believe that BLM personnel will be pleased with the new uniform and that BLM's missions will be enhanced as our image continues to improve.

## Financial Management

BLM's Division of Finance in the Washington Office directs the operation of improvements to BLM's accounting system; provides guidance on financial management policy and procedures; and manages the Payments in Lieu of Taxes program and the BLM Public Land revenue sharing payments to State and local governments program.

During Fiscal Year 1987, BLM continued its program to improve cash management. The Division of Finance coordinated with the Office of the Secretary and the Department of the Treasury to continue the use of private banking "lockbox" facilities to permit the use of an electronic funds transfer system to expedite the collection and deposit of Oregon and California Grant Lands timber revenues. Approximately $77 million was collected in Fiscal Year 1987 by the use of lockbox. This resulted in an estimated interest savings to the Federal Government of $64,730 for Fiscal Year 1987.

The Division of Finance supported programs with unique financial management needs, such as fire suppression administrative support teams, reimbursement procedures, mineral leasing, and billings and collections. The Division of Finance also was responsible for coordinating and overseeing BLM's implementation of internal control system to ensure that all programs and functions performed by BLM are reviewed periodically to minimize the possibility of waste, fraud, and abuse in

accordance with the Federal Managers' Integrity Act. This function was transferred to the Division of Program Evaluation effective with Fiscal Year 1988.

## Management and Productivity Initiatives

During Fiscal Year 1987, BLM undertook several initiatives designed to improve the productivity of its programs and employees. A Bureauwide productivity improvement plan using a "total Bureau" program emphasis was developed and included in the Fiscal Year 1988 budget document. The quality and quantity of work accomplishments will be monitored as a means of identifying where efficiencies are occurring or where efficiency needs to be improved.

BLM also developed the Productivity Pilot Program, a three-year program to improve the quality of worklife for employees, establish a more active organization, create more responsive resource management, improve the quality of work, and improve productivity. Four BLM districts, (Susanville, California; Butte, Montana; Roswell, New Mexico; and Rock Springs, Wyoming) were selected from a list of nominations based upon the existing variety of resource management conditions, strong motivational characteristics, and ability to support a significant pilot program. The pilot program that began October 1, 1987, allows local managers to set priorities in conjunction with Departmental, BLM, and State priorities, and to do things because they make sense. The program has the potential to reduce unnecessary procedures and tasks. Successful initiatives that could have Bureauwide application will be recommended to the Bureau Management Team for consideration.

## Personnel Management

BLM's Division of Personnel in the Washington Office concentrated much of its efforts on developing personnel policies in connection with streamlining of personnel services, career development programs, and major position classification issues during Fiscal Year 1987.

In an effort to improve productivity through maximum use of human resources, BLM is continuing the implementation of its career program. The program has five major components: New Employee Orientation, Employee Excellence Seminar, Professional Excellence Program, Management and Leadership, and Advanced Leadership. The first two components are geared to all employees at the beginning and early stages of their careers and are designed to build an understanding of and commitment to BLM's mission and their role in that mission. The final three components focus on identifying and developing both a reserve of technological expertise and a body of high-potential future managers and leaders.

During Fiscal Year 1987, BLM employed approximately 10,000 individuals. Continued emphasis was placed on position management and position classification throughout BLM. Comprehensive State-level position classification reviews were completed on a wide variety of professional and technical support positions; local personnel management committees in the field provided key direction for this effort. State-level monitoring of position management trends in accordance with locally-managed plans continued to achieve a better record in position management.

A BLM employee examines cacti in California's desert.

A BLM soil scientist uses a hand seeder to reseed an area for reclamation.

# Financial Management

## Appropriations and Expenditures

BLM programs are funded through six major operating appropriations, several minor permanent and trust appropriations, and reimbursements from other Federal agencies for work performed on their behalf. In addition, the BLM budget includes one annual appropriation and numerous permanent appropriations that provide funds to State and local governments in which Federal land resources are located, either as payments in lieu of taxes or as shared revenues from the sale, leasing and disposition of resource commodities.

Table 4
BLM FUNDING

| | FY 1984 | FY 1985 | FY 1986 | FY 1987 |
|---|---|---|---|---|
| | (In millions) | | | |
| BLM Operating Appropriations | $ 482.7 | 489.0 | 457.8 | 577.1 |
| Payments-in-Lieu of Taxes | 105.0 | 103.0 | 99.9 | 105.0 |
| Permanent Payments to States | 58.1 | 141.1 | 12.4 | 81.4 |
| Other Miscellaneous | 7.7 | 4.8 | 4.7 | 5.9 |
| TOTALS: | $ 653.5 | 728.8 | 574.8 | 769.4 |

Table 5
Program Funding and Obligation Data
Fiscal Years 1986 through 1988

| | FY 1986 Actual | FY 1987 Actual | FY 1988 Enacted |
|---|---|---|---|
| | (In thousands) | | |
| PLANNING (Including O&C Grant Lands) | | | |
| Appropriation | $ 9,222 | $ 9,863 | $ 10,097 |
| Obligation | 9,201 | 9,752 | 10,079 |
| Work Years | 214 | 205 | 214 |
| ENERGY AND MINERALS PROGRAMS | | | |
| OIL AND GAS MANAGEMENT | | | |
| Appropriation | 42,630 | 46,915 | 47,152 |
| Obligation | 42,228 | 46,365 | 47,152 |
| Work Years | 1,115 | 1,127 | 1,128 |
| GEOTHERMAL MANAGEMENT | | | |
| Appropriation | 2,639 | 2,444 | 2,458 |
| Obligation | 2,612 | 2,388 | 2,458 |
| Work Years | 60 | 50 | 55 |
| COAL MANAGEMENT | | | |
| Appropriation | 18,506 | 14,050 | 13,608 |
| Obligation | 18,444 | 13,957 | 13,608 |
| Work Years | 310 | 250 | 245 |
| OIL SHALE/TAR SANDS MANAGEMENT | | | |
| Appropriation | 2,008 | 0 | 0 |
| Obligation | 19,250 | 0 | 0 |
| Work Years | 25 | 0 | 0 |
| NONENERGY LEASABLE (MINERALS LEASING AND URANIUM OPERATIONS) | | | |
| Appropriation | 4,621 | 4,453 | 4,745 |
| Obligation | 4,617 | 4,317 | 4,745 |
| Work Years | 101 | 89 | 90 |
| MINING LAW ADMINISTRATION AND MINING MATERIALS | | | |
| Appropriation | 9,891 | 11,451 | 12,707 |
| Obligation | 9,857 | 11,310 | 12,707 |
| Work Years | 267 | 282 | 288 |
| LANDS PROGRAM | | | |
| ENERGY AND NONENERGY REALTY | | | |
| Appropriation | $ 16,076 | $ 17,012 | 4 22,137 |
| Obligation | 16,005 | 16,809 | 22,137 |
| Work Years | 445 | 429 | 488 |
| ALASKA LANDS | | | |
| Appropriation | 12,822 | 14,157 | 14,003 |
| Obligation | 12,766 | 14,079 | 14,003 |
| Work Years | 292 | 269 | 254 |
| RIGHTS OF WAY | | | |
| Appropriation | 7,442 | 8,414 | 7,891 |
| Obligation | 7,442 | 8,405 | 7,891 |
| Work Years | 224 | 224 | 216 |
| ACQUISITIONS | | | |
| Appropriation | 8,784 | 9,198 | 10,502 |
| Obligation | 4,143 | 3,279 | 10,502 |
| Work Years | 48 | 49 | 49 |
| WITHDRAWAL REVIEW | | | |
| Appropriation | 3,583 | 3,599 | 3,465 |
| Obligation | 3,339 | 3,547 | 3,465 |
| Work Years | 85 | 83 | 75 |

| | FY 1986 Actual | FY 1987 Actual | FY 1988 Enacted |
|---|---|---|---|
| | (In thousands) | | |
| WILDERNESS REVIEW | | | |
| Appropriation | 6,967 | 7,300 | 7,462 |
| Obligation | 6,959 | 7,260 | 7,462 |
| Work Years | 159 | 154 | 151 |
| RECREATION MANAGEMENT | | | |
| Appropriation | 8,284 | 9,769 | 10,319 |
| Obligation | 8,348** | 9,640 | 10,319 |
| Work Years | 190 | 212 | 213 |
| NATURAL HISTORY AND CULTURAL RESOURCE MANAGEMENT | | | |
| Appropriation | $ 5,783 | $ 6,630 | $ 6,629 |
| Obligation | 5,780 | 6,545 | 6,629 |
| Work Years | 125 | 126 | 124 |
| RENEWABLE RESOURCE PROGRAMS RANGELAND MANAGEMENT (INCLUDES SOIL, WATER, AND AIR) | | | |
| Appropriation | 55,431 | 59,803 | 63,335 |
| Obligation | 55,606** | 58,392 | 63,335 |
| Work Years | 1,181 | 1,179 | 1,213 |
| FOREST MANAGEMENT (INCLUDES PUBLIC DOMAIN AND O&C LANDS) | | | |
| Appropriation | 51,485 | 52,782 | 54,673 |
| Obligation | 51,568** | 50,864 | 54,673 |
| Work Years | 1,096 | 1,053 | 1,041 |
| WILDLIFE HABITAT MANAGEMENT | | | |
| Appropriation | 16,503 | 17,467 | 19,664 |
| Obligation | 16,464 | 17,306 | 19,664 |
| Work Years | 350 | 348 | 346 |
| WILD HORSE AND BURRO MANAGEMENT | | | |
| Appropriation | 16,234 | 17,936 | 14,735 |
| Obligation | 16,230 | 17,920 | 14,735 |
| Work Years | 152 | 155 | 139 |
| SUPPORT SERVICES LAW ENFORCEMENT | | | |
| Appropriation | 3,177 | 3,362 | 3,560 |
| Obligation | 3,168 | 3,350 | 3,560 |
| Work Years | 38 | 41 | 39 |
| CADASTRAL SURVEY | | | |
| Appropriation | 25,605 | 27,165 | 27,943 |
| Obligation | 25,554 | 27,058 | 27,943 |
| Work Years | 461 | 475 | 451 |
| ENGINEERING AND MAINTENANCE | | | |
| Appropriation | $ 15,441 | $ 17,100 | $ 18,307 |
| Obligation | 15,313 | 16,787 | 18,307 |
| Work Years | 269 | 269 | 265 |
| FIRE MANAGEMENT | | | |
| Appropriation | 10,346 | 11,022 | 11,505 |
| Obligation | 10,352** | 10,999 | 11,505 |
| Work Years | 144 | 140 | 148 |
| GENERAL ADMINISTRATION | | | |
| Appropriation | 79,528 | 86,679 | 87,425 |
| Obligation | 79,520 | 88,218 | 87,425 |
| Work Years | 1,064 | 1,120 | 1,111 |
| DATA MANAGEMENT | | | |
| Appropriation | 13,309 | 15,650 | 22,215 |
| Obligation | 13,339 | 15,556 | 22,215 |
| Work Years | 252 | 252 | 252 |

** Obligations include expenditures from prior year unobligated carryover funds.

## Revenues and Receipts

BLM is a primary collector of Federal revenues. Gross receipts from the lease, use, and sale of public lands and resources totaled approximately $219.5 million in Fiscal Year 1987 (see Table 6). Of this amount, $74 million will be returned to the States, $13 million was transferred to the Reclamation Fund, $7.9 million was transferred to other Federal agencies, and the remaining $123.9 million went into the general fund of the U.S. Treasury. Monies appropriated from the Treasury to BLM operating expenses totaled $481 million in Fiscal Year 1987.

The development and use of BLM lands and resources generate receipts from a variety of sources. Timber receipts totaled $152.6 million in Fiscal Year 1987. Receipts generated by other BLM programs, including sale of public lands, simultaneous oil and gas filing fees, grazing, right-of-way leases, permits, and rentals, and other miscellaneous receipts remained constant with receipts from past years, with the exception of those for simultaneous oil and gas filing fees which decreased significantly.

Table 6
Bureau of Land Management's Receipts

| | FY 1987 Actual | FY 1988 Estimated |
|---|---|---|
| STATEMENT OF PUBLIC LAND RECEIPTS | | |
| Mineral Leases and Permits | $ 5,338,521(*) | $ 6,268,000 |
| Sales of Public Lands & Materials | 8,288,142 | 10,000,000 |
| Simultaneous Oil & Gas Filing Fees | 16,619,388 | 15,000,000 |
| Fees and Commissions | 1,675,817 | 1,700,000 |
| Sales of Public Timber | 11,032,110 | 14,700,000 |
| Oregon and California Grant Lands (Timber Sales) | 136,844,266 | 142,800,000 |
| Coos Bay Wagon Road Lands (Timber Sales) | 4,819,772 | 5,400,000 |
| Grazing Fees | 14,315,412 | 14,840,000 |
| Rights-of-Way Rentals | 3,399,509 | 2,400,000 |
| Rent of Land | 376,952 | 375,000 |
| Miscellaneous Leases and Permits | 3,099,261 | 2,225,000 |
| Nonoperating Revenue** | 12,729,370 | 13,461,000 |
| Special Recreation Use Fees | 1,028,356 | 1,000,000 |
| TOTALS | $219,566,876 | $230,169,000 |
| ALLOCATION OF PUBLIC LANDS RECEIPTS | | |
| States and Counties | $ 74,648,220 | 79,726,000 |
| Reclamation Fund | 13,035,963 | 14,972,000 |
| Transferred to Other Fed. Agencies | 7,964,990 | 8,227,000 |
| Indian Trust Fund | 4,970 | 10,000 |
| General Fund | 123,912,733 | 127,234,000 |
| TOTALS | $219,566,876 | $230,169,000 |

* Only reflects receipts collected for the rental of oil and gas pipeline rights-of-way, Natural Petroleum Reserve revenues, and miscellaneous mineral revenues administered by the Bureau of Land Management.

** Incidental receipts from fines, taxes, etc., that are unrelated to routine public land administration.

Table 8
Summary of Payments in Lieu of Taxes by State

| State | FY 1987 Payment |
|---|---|
| ALABAMA | 115,059 |
| ALASKA | 5,179,705 |
| ARIZONA | 8,465,658 |
| ARKANSAS | 1,100,286 |
| CALIFORNIA | 11,058,651 |
| COLORADO | 6,394,950 |
| CONNECTICUT | 23,900 |
| DELAWARE | 4,590 |
| DISTRICT OF COLUMBIA | 5,165 |
| FLORIDA | 1,103,370 |
| GEORGIA | 704,486 |
| HAWAII | 9,406 |
| IDAHO | 7,828,410 |
| ILLINOIS | 294,868 |
| INDIANA | 148,704 |
| IOWA | 126,214 |
| KANSAS | 335,155 |
| KENTUCKY | 596,221 |
| LOUISIANA | 173,007 |
| MAINE | 63,760 |
| MARYLAND | 34,345 |
| MASSACHUSETTS | 61,514 |
| MICHIGAN | 1,342,815 |
| MINNESOTA | 854,769 |
| MISSISSIPPI | 388,492 |
| MISSOURI | 1,177,338 |
| MONTANA | 8,398,123 |
| NEBRASKA | 330,116 |
| NEVADA | 5,804,131 |
| NEW HAMPSHIRE | 217,019 |
| NEW JERSEY | 30,341 |
| NEW MEXICO | 10,618,667 |
| NEW YORK | 48,693 |
| NORTH CAROLINA | 1,285,613 |
| NORTH DAKOTA | 563,659 |
| OHIO | 187,563 |
| OKLAHOMA | 758,674 |
| OREGON | 2,885,470 |
| PENNSYLVANIA | 203,755 |
| RHODE ISLAND | 0 |
| SOUTH CAROLINA | 125,255 |
| SOUTH DAKOTA | 1,760,765 |
| TENNESSEE | 515,207 |
| TEXAS | 1,272,376 |
| UTAH | 9,896,722 |
| VERMONT | 241,912 |
| VIRGINIA | 1,053,534 |
| WASHINGTON | 1,914,740 |
| WEST VIRGINIA | 813,342 |
| WISCONSIN | 437,581 |
| WYOMING | 7,529,799 |
| PUERTO RICO | 7,677 |
| VIRGIN ISLANDS | 82,432 |
| GUAM | 2,489 |
| TOTALS | 104,586,493 |

## State and Local Shares

BLM's most direct fiscal impact upon States that include public lands is through revenue sharing and other direct payments. In the decade from 1977 through 1987, State and local governments received nearly $4 billion as their share of revenues collected from the lease or sale of public land resources and as in-lieu payments for tax-exempt lands.

### Revenue Sharing

Taylor Grazing Act revenues are distributed according to the type of land generating them. Of the fees collected from livestock grazing districts, 12.5 percent are distributed to the State for expenditure by the State legislature to benefit the counties generating these grazing receipts. Grazing revenues generated on public lands outside the grazing districts are shared equally with the State. State legislatures have the authority to expend the funds to benefit the counties where grazing monies are collected.

Land sale revenues generated in Nevada under the Santini-Burton Act are collected and distributed on an annual basis. This Act authorizes the allocation of 10 percent of gross revenues back to Clark County or the municipality in which these revenues are generated, and five percent to the State of Nevada. The remaining revenues are deposited in the Land and Water Conservation Fund for the purchase of environmentally sensitive land in the Lake Tahoe Basin.

## Payments in Lieu of Taxes

Local government units within Western States are the principal beneficiaries of the 1976 Payments in Lieu of Taxes Act. This law was enacted to provide Federal payments to those areas where large portions of land are in Federal ownership and, therefore, are exempt from local property taxes. Serving as a supplement to revenue sharing funds, payments in lieu of taxes are made directly to local governments and may be used for any governmental purpose.

Lands eligible for payments in lieu of taxes are Federally owned lands in the National Forest and National Park Systems, lands administered by BLM, lands dedicated to the use of Federal water resource development, dredge disposal areas under the jurisdiction of the Army Corps of Engineers, National Wildlife Reserve Areas, inactive and semiactive Army installations, and certain lands donated to the United States Government. The Act specifically prohibits payments for lands (but not certain donated lands) that were tax exempt before being acquired from State or local governments.

Since payments in lieu of taxes started in 1977, more than $1.1 billion has been paid to local governments; more than $104.5 million of that amount was paid in Fiscal Year 1987 (see Table 8).

Table 7
Payment of BLM Receipts to States
as of September 30, 1987

| States | Mineral Leases and Permits | Forage Receipts Outside Taylor Grazing Districts | Forage Receipts Inside Taylor Grazing Districts | Sale of Public Land and Timber | Other | Total |
|---|---|---|---|---|---|---|
| Alabama | $ 0 | $ 0 | $ 0 | $ 405 | $ 0 | $ 405 |
| Alaska | 1,196,121 | 0 | 0 | 17,064 | 0 | 1,213,185 |
| Arizona | 19,242 | 115,879 | 94,407 | 9,481 | 0 | 239,009 |
| California | 12,615 | 109,320 | 19,328 | 123,074 | 0 | 264,337 |
| Colorado | 39,431 | 32,578 | 78,709 | 20,364 | 0 | 171,082 |
| Florida | 0 | 0 | 0 | 45 | 0 | 45 |
| Idaho | 7,693 | 23,025 | 173,817 | 39,462 | 0 | 243,997 |
| Kansas | 0 | 10 | 0 | 0 | 0 | 10 |
| Minnesota | 0 | 0 | 0 | 271 | 0 | 271 |
| Montana | 3,767 | 97,857 | 106,351 | 8,446 | 488,220 | 704,641 |
| Nebraska | 0 | 1,478 | 0 | 1,590 | 0 | 3,068 |
| Nevada | 0 | 27,679 | 291,864 | 213,574 | 0 | 533,117 |
| New Mexico | 325,242 | 166,705 | 253,614 | 74,091 | 13,284 | 832,936 |
| North Dakota | 131 | 6,340 | 0 | 735 | 0 | 7,206 |
| Oklahoma | 50 | 215 | 0 | 469 | 5,917 | 6,651 |
| Oregon | 310 | 31,879 | 158,835 | 72,856,479 | 0 | 73,047,503 |
| South Dakota | 89 | 45,860 | 0 | 776 | 5,907 | 52,632 |
| Utah | 47,458 | 0 | 165,115 | 16,407 | 2,806 | 231,786 |
| Washington | 0 | 18,634 | 0 | 10,096 | 0 | 28,730 |
| Wisconsin | 0 | 0 | 0 | 16 | 0 | 16 |
| Wyoming | 139,476 | 311,710 | 170,483 | 30,669 | 0 | 652,338 |
| Totals | $1,791,625 | $989,169 | $1,512,523 | $73,423,514 | $516,134 | $78,232,965 |

# A Look Ahead—1988

Fiscal Year 1988 will offer many challenging issues and programs for BLM in its 42nd year of managing the Nation's Public Lands. A sampling of important BLM management goals for 1988 are summarized in the following pages.

## Hazardous Materials Management

- Develop a hazardous materials policy so that BLM can effectively deal with toxic materials on the public lands.
- Seek legislation to amend Section 3 of the Recreation and Public Purposes Act of 1926. The proposed amendment would remove the existing reverter provision and allow BLM to patent land to communities in the West at a reduced cost. While this amendment would assist in avoiding Federal costs on future solid waste facilities, it would not change BLM's liability for existing sites. Such a bill would assure that much needed landfill sites would be available to small communities and that these communities would have primary responsibility for their operation and maintenance. It would also assure that supervision of local waste sites would be handled by State and local governments and the Environmental Protection Agency, entities that have the necessary expertise to handle waste sites that may contain hazardous materials.
- Establish an effective working arrangement between land managing agencies and the Environmental Protection Agency for cleanup activities on Federal lands. Important parts of this effort are to ensure that agency expertise is used for highest priority matters and to avoid duplication of effort among Federal agencies.
- Complete preliminary assessments and site investigations to meet statutory requirements.
- Initiate a remedial investigation/feasibility study to identify appropriate measures for cleanup on the Lee Acres Site in New Mexico.
- Conduct land status assessments to identify ownership of sites and to determine if BLM is responsible for possible cleanup action.

## Energy and Minerals Management

### Oil and Gas Management

- Publish proposed rulemaking concerning measurement of oil and gas, hydrogen sulfide operations, disposal of produced water, well workover/completion/abandonment, and waste prevention/beneficial use.

### Coal Management

- Complete revisions to the Federal coal leasing program by issuing final regulations revising certain coal unsuitability criteria.
- Through the regional coal teams, plan regional coal leasing over the next five years.
- Establish national standards for assessing the adequacy of hydrology data.
- Develop regional data adequacy standards.

### Mineral Materials

- Increase awareness and public participation in the mineral materials program through a Project Pride initiative.

## Land Programs

### Lands

- Continue a dynamic land-exchange initiative with emphasis on public-interest trades that will increase management efficiencies for the United States and nonfederal entities. Toward this end, BLM estimates that approximately 435,000 acres will be traded with the States, local governments, and private sector during the fiscal year.
- Continue to be responsive to other public land applications. Overall during 1988, BLM expects to process 130 desert land applications, offer 6,800 acres for sale, and process 160 applications under the Recreation and Public Purposes Act.
- Identify and resolve agricultural trespass on public lands, focusing on areas with high potential for environmental damage and significant loss of income to the public.
- Promulgate regulations to prohibit unauthorized use, occupancy, or development of the public lands. The regulations will provide for recovery of administrative and rehabilitation costs as well as back rent. The regulations are also expected to provide a deterrent to future agricultural and occupancy trespass. BLM expects to complete action on 1,000 unauthorized use cases in Fiscal Year 1988.

## Alaska Lands

- Resolve ownership and management issues in 26 rural communities through the townsite program.
- Continue review of the land exchanges proposed by the Assistant Secretary, Fish and Wildlife and Parks that would exchange Alaska Native Inholdings within National Wildlife Refuges in Alaska for limited oil and gas rights in the Arctic National Wildlife Refuge.
- Continue land activity through the patent plan process to address land title issues for the State and Alaska Natives. Continue special focus on historic and cemetery sites provided under the Alaska Native Claims Settlement Act for the Native corporations.

## Rights-of-Way

- Put in place the Lands Automated Billing System, a system to replace the current billing system, with operation beginning in Fiscal Year 1989.
- Develop trespass regulations for the rights-of-way program that would provide Bureauwide standards for assessing damages for unauthorized right-of-way use of public lands and provide for the recovery of administrative costs.
- Complete guidance on disposal of produced waters (water produced as a by-product from oil and gas production).

## Acquisition

- Follow up on the recommendations made in 1987 by the Acquisition Task Force.
- Complete two slide/video programs on the acquisition program.

## Recreation Resources

- Complete development of the Recreation 2000 Initiative. Approve and distribute the new recreation resources management policy. Start development of guidance to implement the new policy.
- Continue to stress development of partnerships for management of recreation resources with Federal, State, and local agencies and private organizations.
- Establish a working relationship with national, State, regional, and local tourism entities.

## Cultural Resource Management

- Continue to vigorously enforce the Archaeological Resources Protection Act of 1979, which prohibits excavation or removal of archaeological resources without a permit, and also the sale, purchase, or transport of illegally removed remains. In conjunction with this, in Fiscal Year 1988 each BLM State will prepare a comprehensive Archaeological Resources Protection Act Awareness/Enforcement Plan outlining the scope of the vandalism and looting problem in the State and developing and implementing measures to combat the problem.
- Place continued emphasis on monitoring permittee compliance with permit terms and conditions to ensure the completion of good-quality and cost-effective archaeological work.

Surveyors must sometimes use unconventional methods to reach surveying sites, such as Native allotments.

### Wilderness Resources

- Continue the emphasis on monitoring and surveillance of activities in wilderness study area.
- Emphasis training for managers in interim management and management of designated areas.
- Begin preparation of wilderness study reports on areas where final wilderness environmental analysis has been completed.

## Renewable Resource Programs

### Rangeland Management

- As part of the continuing nationwide work in acidic deposition monitoring, prepare to operate three dry deposition (aerosols, gases) monitoring sites co-located with acid rain stations in Idaho, Nevada, and Wyoming. These stations are part of the National Dry Deposition Network, which will establish 10 stations in the West in Fiscal Year 1988.
- Complete a comprehensive water rights assessment for instream flow requirements for the San Pedro River Riparian Resource Conservation Area in Arizona.
- Publish the proposed and final rulemaking to implement Executive Order 12548 to establish a permanent grazing fee formula.

### Riparian Area Management

- Develop a strategy to describe riparian area sites and associated management potential.
- Initiate a riparian area management contest to be sponsored by the American Fisheries Society for field offices in BLM and Forest Service.
- Establish a task force to review methods for determining economic effects of proper riparian area management.

### Wildlife Habitat Management

- Complete State strategic plans for fish and wildlife. These plans will enable a stronger consensus of management and others as to the future program and a more clearly targeted program at the field level.
- Place increased emphasis on fisheries habitat management because of the recreational and economic importance of these resources.
- Also focus on management for waterfowl habitat, with emphasis on BLM's role in implementing the North American Waterfowl Management Plan; raptor habitat; threatened and endangered species habitat, especially in regard to management of 800 candidate species in a manner that will preclude the need for Federal listing; and desert bighorn sheep and desert tortoise habitats (via implementation of rangewide plans).

### Wild Horse and Burro Management

- Develop a final wild horse and burro program policy. The public and congressional response to the draft policy make it uncertain if the proposal to destroy healthy unadopted animals will be implemented. Other aspects of the proposed policy, such as the creation of sanctuaries for otherwise unadoptable animals, also needs careful consideration.
- The President's budget for Fiscal Year 1988 proposed the removal of 10,000 excess wild horses and burros and the adoption of 13,500. Fee waivers constituted roughly two-thirds of the Fiscal Year 1987 adoptions. It was unclear how great an effect the court decision concerning titling of animals would have on fee waiver adoptions, if the Government's appeal were unsuccessful. Any significant interruption to this part of the adoption program could force a reduction in other planned activities, e.g., removals, in order to accommodate the increased cost of maintaining unadopted animals. If removals must be curtailed, the achievement of the appropriate management level of wild horses and burros on the Public Land would be further delayed.

Bighorn sheep in Wyoming's Whiskey Mountain area in the Rawlins District produce many sheep that are transplanted to other areas.

## Support Services

### Planning

- Continue to establish better ties between land-use plans and implementation of decisions (including allocation of resources) by linking planning decisions with the annual work plan and identifying how automation can be used to improve implementation of plans.
- Issue the revised BLM handbook for implementation of the National Environmental Policy Act.
- Hold an Environmental Management Conference to identify issues facing BLM in the 1990s.
- Complete the last grazing environmental impact statement required by the 1974 court settlement with the Natural Resources Defense Council, as an integral part of the Cody (Wyoming) resource management plan. The last 49 grazing environmental impact statements, of 143 total, were incorporated into resource management plans.
- Initiate a vigorous outreach program to explain the revised guidance for evaluation and designation of areas of critical environmental concern.

### Automated Land and Mineral Record System

- Develop the system master architecture, which is a general system design used in specifying the automation requirements and in selecting a vendor, for both the Automated Land and Mineral Record System and other automated needs of BLM.
- Implement comprehensive data administration procedures to establish a solid data base for operational use on existing systems in advance of software and hardware completion.
- Expand formal and informal coordination with other agencies.
- Continue data collection necessary to support the project.
- Develop the BLM infrastructure, including assessing training requirements and possible organizational changes.

The Alaska Fire Service sends firefighters to the Lower 48 when things cool down in Alaska.

### Fire and Aviation Management

- Implement the new Fire Management Activity Plan process leading to completed plans covering all BLM District Offices.
- Begin implementation of the approved recommendations from the Fire Management Improvement Initiatives taskforce report leading to increased productivity, efficiency, and cost effectiveness.
- Continue participation and enhance current efforts with the ongoing Wildland/Urban Interface Initiative.
- Develop a Bureauwide aviation safety accident prevention plan.
- Plan and develop a wide range of new aviation related training courses and materials.

### Information Resources Management

- Complete BLM's Modernization Project, exploring new and better equipment and ways for automation.
- Conduct automated data processing risk analysis and training on continuity of operations plans, with comprehensive, on-site plans being developed. This effort will involve a new, microcomputer-driven program to expedite security planning and ensure that BLM maintains its automated records using the most secure means possible.
- Consolidate the detailed records inventories completed in Fiscal Year 1987, thereby accurately defining BLM's records status. Together with an accurate inventory of BLM's electronic records, for the first time a comprehensive tool for managing information will become a reality and responding to public inquiries will be enhanced.
- Continue intensive work on the Automated Lands and Minerals Record Program, as additional BLM field offices increase their program capability and service to the public.
- Establish a BLM standard relational data base management system software package.
- Issue final life cycle management guidelines.

- Continue evolution and development of Land Information Systems concept. Continue acquisition of PRIME minicomputers to support these systems.
- Continue progress into Fiscal Year 1988 for more distributed automation resources, enabling BLM's field offices to have increased computer, telecommunications and records management capability. This will improve "on-the-ground" management and service to the public.
- Implement the first year's IRM Trainee Program, which is designed to provide cross-training in the fields of automated data processing and communications. At the completion of the program, participants will have acquired the skills necessary to successfully manage all the technical Information Resource Management disciplines required at BLM's State Offices, Denver Service Center, Boise Interagency Fire Center, or Washington Office. Three trainees will be selected at approximately six-month intervals, beginning in early Fiscal Year 1988.
- Conduct three Information Systems Reviews.

### Volunteers

- At each of BLM's 12 State Offices, conduct at least one training workshop for volunteer program coordinators and other representatives of all BLM districts.

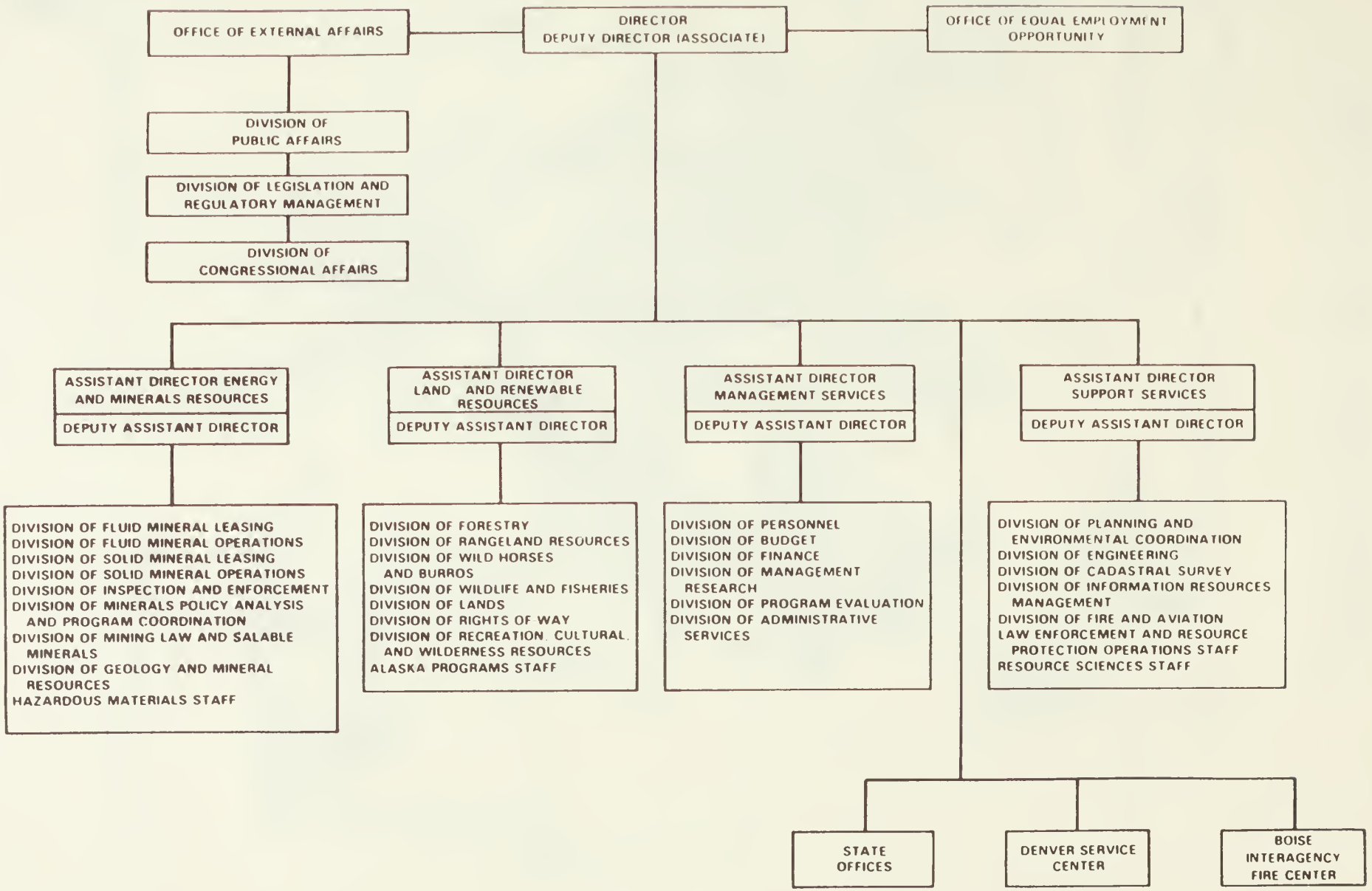
## General Administration

### Management and Productivity Initiatives

- Implement the Productivity Pilot Program in the four Pilot Districts. Employees through BLM can suggest to the Pilot Districts ideas about ways to do business more effectively and efficiently for possible testing in the Pilot Program, thus allowing all employees an opportunity to participate in the program.
- Refine, track, and evaluate the Bureauwide Productivity Improvement Plan as a means of identifying where efficiencies are occurring or where efficiency needs to be improved.
- Participate in the Secretary of the Interior's Productivity Enhancement Funding Program by encouraging employees to identify means of achieving greater productivity throughout the agency and the Department. Seed money is provided for approved projects on a maximum two-year basis to encourage innovative approaches to work accomplishments.

High school student volunteers in Oregon contribute their energy and muscle power to assist the Bureau of Land Management improve spawning and rearing habitat for salmon and steelhead trout in a stream managed by BLM's Eugene District. Here, guided by an adult supervisor, students fill a wire cage with rock to build a "gabion," a water-retention structure designed to ensure future spawning runs of these prized seagoing species. During 1987 volunteers made it possible for BLM to complete fishery improvement measures on more than a dozen western Oregon streams.

# BUREAU OF LAND MANAGEMENT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DIVISION OF PUBLIC AFFAIRS
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RESOURCE SCIENCES STAFF
STATE OFFICES
DENVER SERVICE CENTER
BOISE INTERAGENCY FIRE CENTER

Public Lands administered by the Bureau of Land Management

# PUBLIC LANDS IN THE WESTERN STATES

Legend

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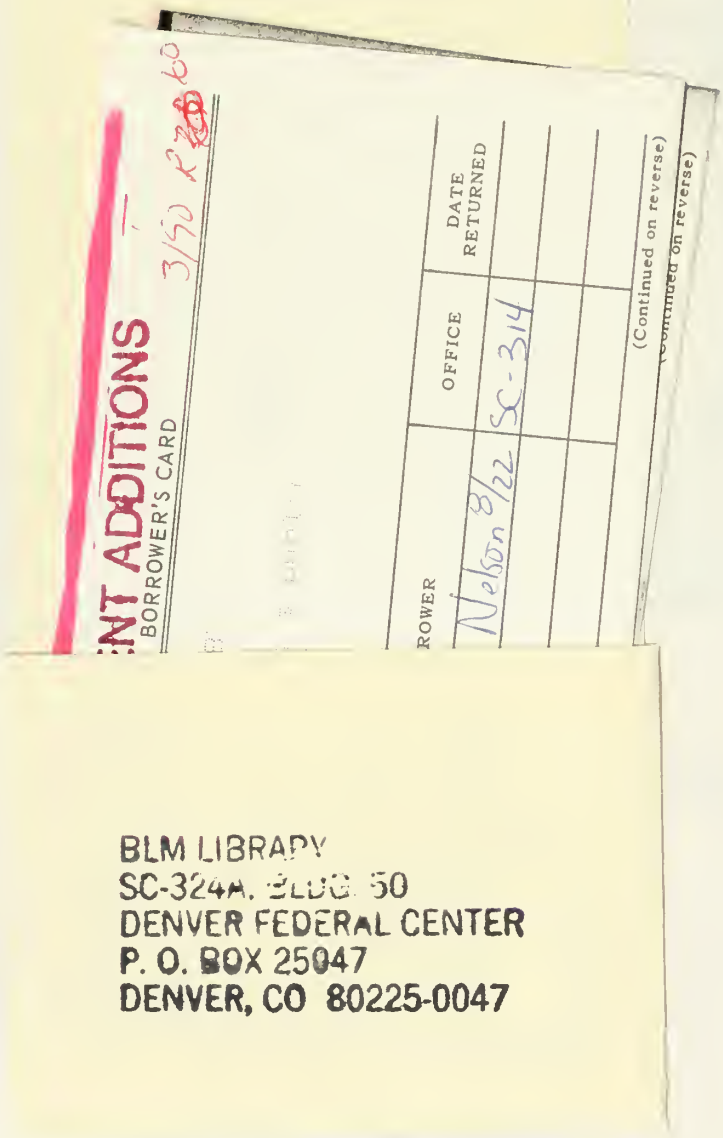


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